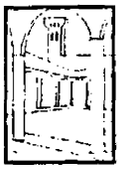

EUROPEAN UNIVERSITY INSTITUTE
Department of Economics

Overcoming the Last Obstacle in Sustainable Rural Development of Monsoon Asia - The Japanese and Chinese Models and a Proposed New Model

Jian-Ming Zhou

Thesis submitted for assessment with a view to obtaining the Degree of Doctor of the European University Institute

Florence, December 1997

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Department of Economics

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Acknowledgements

I owe so much to many more people than I am able to name here. But I sincerely thank all those who have helped me, including professors, secretaries, and researcher representatives of our Department; former President Mr. Emile Noel and Secretary-General Dr. Marcello Buzzonetti (both have unfortunately passed away), current President Prof. Patrick Masterson and Secretary-General Dr. Antonio Zanardi Landi, directors and staff of various services, and researcher representatives of our Institute from which I have received special and exceptional help; the Italian, Florentine and Fiesole governments; the European Union; and many friendly Italian and European people.

In my doctoral study, Prof. Domenico Mario Nuti was my first supervisor. He guided me to market socialism as a third way between the centrally planned economy and free market system, and property rights theory; supported me in my initial research in China's economic reforms in industry, agriculture and banking; introduced me to the Italian Association for the Study of Comparative Economic Studies, the European Association for Comparative Economic Studies, the European Association for Research in Industrial Economics, the European Economic Association and the Food and Agriculture Organization of the United Nations whose various conferences and workshop later successively invited me to present papers[1]. He also helped me to overcome a range of initial difficulties. After

---

[1] List of the conferences and workshop in which I have presented a paper.

AISSEC - Italian Association for the Study of Comparative Economic Systems
EACES - European Association for Comparative Studies
EARIE - European Association for Research in Industrial Economics
EEA - European Economic Association
FAO - Food and Agriculture Organization of the United Nations

1. Oct. 12-14, 1989: "China's Economic Reforms through Two Stages - The Case of the Industrial Enterprises", Sixth AISSEC Scientific Conference, in University of Urbino, Italy.

2. Sep. 2-4, 1990: "Short-Term Behavior of Chinese Industrial Enterprises", 17th EARIE Annual Conference, in Catholic University of Portugal, Lisbon.

3. Sep. 27-29, 1990: "The Inevitable Direction of China's Economic Reforms in Agriculture", First EACES Conference and Seventh AISSEC Scientific Conference, in University of Verona, Italy.

4. Aug. 30 - Sep. 2, 1991: "The Trend of China's Economic Reform in Agriculture", Sixth EEA Annual Congress, in Department of Applied Economics, University of Cambridge, UK.

leaving EUI, he became my co-supervisor and has extended great support to me. Prof. Stuart Holland has made a particular contribution to my research. He introduced me to the taxonomy of variable mixed economies and development economics, encouraged the concentration of my research on China's economic reform in agriculture, supervised me in the whole process of thesis writing, taught me writing skills, upgraded my English, supported my participation in academic activities, and helped me to surmount various academic and administrative difficulties. Prof. Christopher Howe gave precious comments on the earlier version of the thesis, expanded my field of vision from China's agriculture to the whole rice-based economies of monsoon Asia, recommended essential literature, designed the outline of the present version of the thesis, improved my writing techniques, and promoted an invaluable one-month visit to School of Oriental and African Studies in London to research materials on China since I have had no opportunity to make a field study in China itself. His contribution was much beyond the call of duty.

Prof. Norio Tsuge ardently presented me new developments of land tenure in Japan which I have had no possibility to visit, and sent me updated materials and beneficial comments on my research paper. Prof. Michael Artis democratically accepted my non-mathematical research approach, approved the outline of the present version of the thesis, gave valuable comments on my research paper, improved my English, and sympathetically helped me with many other issues. Dr. Gustavo Gordillo, Prof. Hans Meliczek, Dr. James Riddell, and Dr. Paolo Groppo appreciated and supported my research, gave me productive

---

5. Oct. 3-5, 1991: "Why Is Lease System Successful in China?", Eighth AISSEC Scientific Conference, in Faculty of Economics and Commerce, University of Trieste, Italy.

6. Sep. 24-26, 1992: "Privatization, State-Private Mixed Economy or Improved Collective-Private Mixed Economy? Alternative Approaches for Further Agricultural Ownership Reform in China", Second EACES Conference, in Faculty of Economics, University of Groningen, the Netherlands.

7. Sep. 8-10, 1994: "A Third Way: Neither Collectivization Nor Full Privatization - Mixed Economy in Chinese Agriculture", Third EACES Conference, in Department of Comparative Economics, Budapest University of Economic Sciences, Hungary.

8. Apr. 9-13, 1996: "Agrarian Reform and Rural Development Strategies in China, Japan and Other Rice-Based Economies of Monsoon Asia", "Rural Development: International Workshop" by FAO, in Department of Rural Sociology, University of Godollo, Hungary.

9. Sep. 12-14, 1996: "How to Overcome the Small Size Obstacle in Japan and Some Other Rice-Based Economies in Asia", Fourth EACES Conference, in Institute for Political Studies, University Pierre Mendes France, Grenoble.

comments, provided me with the opportunities to make contributions at international level, and promoted the publication of my research papers by the Food and Agriculture Organization of the United Nations. Ms. Janice Osborn, editor of "World Agricultural Economics and Rural Sociology Abstracts" of CABI (Commonwealth Agricultural Bureau International), selected my papers from the enormous amount of publications in the world for publishing their abstracts.[2]

Prof. Alan Kirman and Prof. Cyril Lin carefully read the earlier version of the thesis and gave constructive comments. Prof. Kirti Chaudhuri introduced into my jury Prof. Christopher Howe and his exceptional expertise on Asian and Chinese economy, including agriculture. Dr. Mirella Tieleman-Gargari continuously encouraged my study. Dr. Jean Claude Marechal contributed important comments to my initial research. Under the invitations of Prof. Gianni Salvini, Prof. Carlo Frateschi and Prof. Bruno Dallago, I gave lectures on China's economic reforms in University of Padova and University of Trento.

My parents raised me from childhood through much hardship. In order to carry out research in Italy, when successively they were seriously ill, I could not directly take care of them physically or financially. My brothers and sisters had kindly borne this duty for me, and

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[2] List of my FAO, EUI and CABI publications.

1. Apr. 9-13, 1996: "Agrarian Reform and Rural Development Strategies in China, Japan and Other Rice-Based Economies of Monsoon Asia", in Food and Agriculture Organization of the United Nations (ed.) 1997 "Rural Development: International Workshop". Abstract (forthcoming) in "World Agricultural Economics and Rural Sociology Abstracts", Commonwealth Agricultural Bureau International (CABI).

2. Nov. 22, 1996: "Proposals for Land Consolidation and Expansion in Japan", EUI Working Paper ECO No. 96/36, European University Institute. Abstract No. 5508, Vol. 39, Issue 10, Oct. 1997: "World Agricultural Economics and Rural Sociology Abstracts", Commonwealth Agricultural Bureau International (CABI).

3. Oct. 1, 1997: "A New Proposal for Land Consolidation and Expansion in Japan and Other Economies", Sustainable Development Dimensions in the Internet, Food and Agriculture Organization of the United Nations, Rome,
http://www.fao.org/waicent/faoinfo/sustdev/LTdirecu/LThomepg.htm, "Analysis",
or http://www.fao.org, "Sustainable Development", "Land Tenure", "Analysis". Abstract (forthcoming) in "World Agricultural Economics and Rural Sociology Abstracts", Commonwealth Agricultural Bureau International (CABI).

4. 1998 (forthcoming): "How to Carry out Land Consolidation - An International Comparison", "Land Reform, Land Settlement and Cooperatives", Food and Agriculture Organization of the United Nations, Rome.

also sent me many research materials, thus made it possible for me to complete the thesis. A number of my relatives and friends in China also helped me.

Mr. Deng Xiao-Ping was the chief designer of China's economic reforms and opening to the outside world. His historic contributions made it possible for Chinese peasants and officials to experiment and find effective ways to overcome the last obstacle imposed by the monsoon in sustainable rural development of Asia which the Japanese model has been unable to resolve since 1960, and also for me to come abroad to carry out this comparative study and make possible contributions toward solving it.

Needless to say, I take sole responsibility for my views and errors in this thesis.

Abbreviations

DUN	-	Disguised Unemployment
ERP	-	Externality-Receiving Party
EYP	-	Externality-Yielding Party
LURC	-	Land Use Right Certificates
SOC	-	Social Overhead Capital
TVEs	-	Township and Village Enterprises

Glossary

Nine Features of the Japanese Model of Rural Development

1. Institutional changes for an individual-cooperative mixed economy.
2. Government policies supporting rice production and rural development.
3. Construction of rural infrastructure.
4. Higher yields and multiple cropping of rice and other grains.
5. Diversified cropping and non-crop agriculture.
6. Off-farm employment.
7. Peasant migration to cities and work in towns.
8. Agricultural mechanization with small machinery.
9. Persistence of the fragmented small farms.

12 Features of the Chinese Model of Rural Development

1. Institutional changes for a small-scale farming and collective-individual mixed economy.
2. Government policies supporting rice production and rural development.
3. Construction of rural infrastructure.
4. Higher yields and multiple cropping of rice and other grains.
5. Diversified cropping and non-crop agriculture.
6. Off-farm employment.
7. Peasant migration to cities and work in town and village firms.
8. Agricultural mechanization with small machinery.
9. Institutional changes for a large-scale farming and collective-individual mixed economy.
10. Agricultural mechanization with large machinery.
11. Earlier development in some (chiefly Eastern and costal) rural areas, and its promotion in other (mainly Central and Western) areas.
12. Introduction of more advanced technology and management, larger investment, and domestic and international markets to agriculture by urban-rural joint enterprises, and external and foreign joint and single ventures.

Relevant Mixed Economies

Individual-cooperative mixed economy. Fragmented small farms under individual land ownership, which independently control the direct production process of agriculture, plus national rural service cooperatives, which socialistically collectivize forward and backward services and financing for the individual farming units. Established in Japan during 1946-50 and still prevails.

Sub-village individual-collective mixed economy. Sub-village-wide cooperative/enterprise collective use of *physically withdrawable private* land shares, exercising collective-individual dual level operation of large land units, with the basic operation level at one household or at a farming unit including a number of households. Some elementary cooperatives in China before 1949 until Apr. 1956, some agricultural production cooperatives and urban-rural joint farming in Japan since the 1970s took this form.

Village-wide individual-collective mixed economy. Extension of the individual-collective mixed economy from sub-village to village scope. Some elementary cooperatives in China before 1949 until Apr. 1956, and some agricultural production cooperatives and urban-rural joint farming in Japan since the 1970s took this form.

Corporate-individual mixed economy. Collective use of *physically unwithdrawable private* land shares under corporate ownership, exercising village-individual dual level operation of large land units, with the basic operation level at one household or at cooperative/enterprise including a number of households. Such a corporation could cover one or a number of villages. Proposed by the author for Japan, Taiwan, South Korea and other rice-based economies under private land ownership in monsoon Asia once their fragmented small farms have become an obstacle to sustainable rural development.

Small-scale farming and collective-individual mixed economy. Land is collectively owned by the village, but contracted to households for fulfilling state procurement output quotas of grain and other major agricultural products and disposing of surplus output, which is called the *Household Contract System.* Land is equally distributed as fragmented small farms, hence the *Equal Land System.* The village has the duty of carrying out general management and providing services, thus village-household dual level operation of land, with the households as the basic level. Created in China during 1978-83 and still exists.

Large-scale farming and collective-individual mixed economy. Village-individual dual level operation of large land units under collective ownership and the Household Contract

System, with the basic operation level at one household or at cooperative/enterprise including a number of households. Exercised in China mainly since the mid-1980s under the *Dual Land System*, the *Leasing System*, the *Single Land System*, and the *Corporate-Holding System* as the major forms.

Nominal State-individual mixed economy. Land is state-owned (nominally) but individually-possessed, and exchangeable, transferable (salable), leasable, inheritable, and mortgageable. Founded in Cambodia in 1981 (with residential land privately owned), Laos 1988, and Vietnam 1993.

Public-individual mixed economy. Land is under the state, or collective or other forms of public ownership, but individually managed.

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Part 1

Theories

Chapter 1
Introduction

I. Monsoon Asia

In general, the monsoon climate in Asia causes rains in May-October and dryness in November-April. Only rice suits this climate. It has been the major crop for at least 4,000 years.[1] Up to the end of World War Two (WWII), a feudal landlord ownership had been dominant: a few landlords owned large estates while most peasants owned little or no land and were either tenants or wage laborers, although there were also owner-peasants. Farm work had to be done by hand, with simple tools. Reclamation of new land had reached its limit. With such traditional institutions and technologies and physical constraints, in the rainy half year, rice cultivation required highly labor-intensive, sophisticated and coordinated work, resulting in labor shortage. This demanded more labor and caused high population growth, low per capita cultivated land, and small size and fragmentation of individual (family) farming units.[2] In contrast, during the dry

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[1] There are 19 rice-based economies in monsoon Asia: China (mainland), Japan, North Korea, South Korea and Taiwan Province of China (hereafter Taiwan) in East Asia; Cambodia, Indonesia, Laos, Malaysia, Myanmar (Burma), the Philippines, Thailand and Vietnam in Southeast Asia; and Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka in South Asia. Hong Kong and Singapore also belong to monsoon Asia. But because little food is produced domestically, they are not analyzed in this thesis. (Barker; Herdt & Rose 1985: 1. Oshima 1987: 9. Oshima 1993: 1)

[2] "Farm" (or farming unit) means "agricultural holding", which refers to all land that is used wholly or partly for agricultural production and *is operated by one person* - the holder - alone or with the assistance of others, without regard to title, size or location (FAO-PY 1972: 408).

Fragmentation of an agricultural holding is generally defined as the division of the holding into *many* discrete parcels in a village (Fre-Gov 1950: 56. Binns 1950: 5). But some just define it as the situation in which a household operates *more than one* separate parcel of land (Blarel; Hazell; Place & Quiggin 1992: 233. Vander Meer 1982: 1).

A parcel is defined as all land in the holding entirely surrounded by land or water of other holdings or by land or water not forming part of any holding (FAO 1981: 92). It may also be called "noncontiguous piece of land", "plot" or "land unit".

Fragmentation is measured by the number of parcels of land in the holding

half year, due to insufficient work opportunities, there were serious unemployment, underemployment or disguised unemployment.[3] (Oshima 1987: 18-27). Poverty was widespread and persistent. These rice-based economies were dual economies, predominantly agrarian but with some industries in big cities.[4]

Since then, with the same natural conditions, such an economic situation has been changed in some rice-based economies but still dominates in the others. To successfully overcome poverty, there have been basically two models of rural development: the Japanese and Chinese models, while other economies under private land ownership may be at lower stages along the Japanese model, and those based on public land ownership at lower stages along the Chinese one.

II. A Remaining Obstacle Unresolved by the Japanese Model

The Japanese model of rural development under private land ownership started in 1946 with nine major features or stages. 1. *Institutional changes for an individual-cooperative mixed economy* (1946-50): land reform for individual ownership, which brought in huge incentives to peasants for production, but also maintained numerous fragmented small farms; and the setting-up of rural service cooperatives. 2. *Government policies supporting rice production and rural development.* Besides institutional changes, technological progress also contributed to economic growth, which was embodied in features 3-8. Five steps (3-7 below) were taken for reaching full employment: 3. *Construction of rural infrastructure*;

---

in one village (the case of families holding land in several villages is excluded) (Heston & Kumar 1983: 199).

[3] Unemployment and underemployment are variously defined in labor force surveys, but the fundamental definitions are: (1) Those who are willing and able to work but cannot find work are *unemployed.* (2) Among those employed, those who are working less than full time and want more hours of work are *underemployed.* (Oshima 1993: 103). (3) The part of the population engaged in agriculture who could be removed without reducing agricultural output, even though the technical methods in use remain unchanged, are *disguisedly unemployed* (Nurkse 1953: 32).

[4] Although prewar Japan was developed, its industrialization was based on its import of foods from and export of industrial goods to colonies. Its agriculture was relatively stagnant. (Oshima 1987: 39, 109)

4. *Higher yields and multiple cropping of rice and other grains*; 5. *Diversified cropping*[5] *and non-crop agriculture*[6]; 6. *Off-farm employment*[7] and 7. *Peasant migration to cities and work in towns*. As full employment was achieved, wages rose. Hence a post-full employment step: 8. *Agricultural mechanization with small machinery*. In 1960, rice self-sufficiency was achieved, the first transition (agriculture to industry) completed, labor shortages appeared, and the second transition (industry to services) started[8]. By this time, all the major obstacles imposed by the monsoon have been overcome except for 9. *Persistence of the fragmented small farms*.

In the high-wage economy, the income from rice production turned out to be much lower than that from non-grain agriculture and especially off-farm lines. As argued in detail later, in order to make full-time farmers viable[9], fragmented agricultural holdings should be consolidated, farm size enlarged[10], so that large

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[5] Diversified cropping implies a shift from a monoculture or a few crops (mainly grains) to a larger assortment of crops (roots and tubers, pulses, oil crops, vegetables, fruits, berries, treenuts, etc.) (Oshima 1993: 125. FAO-YP 1993: iv).

[6] Agriculture - depending on the context of the thesis - in a broad sense includes cropping (farming), animal husbandry, fishery, forestry and hunting (Oshima 1993: 152) (the importance of hunting has been declining due to environmental protection); but in a narrow sense may only refer to cropping (farming).

[7] Off-farm employment of farm families denotes their employment in nonagricultural sectors, i.e., industry and services. Industry includes mining, manufacturing, construction, public utilities, transportation and communication. Services comprise banking, real estate, public services which require the highest level of education and retail trade, restaurants, domestic and other personal services which only need minimal education. (Oshima 1993: 138, 152)

[8] In monsoon Asia, the first transition is said to be completed when the share of the agricultural labor force in the total labor force (about three fourths) has fallen, while the share of the industrial labor force has risen, to a ratio of roughly one fourth to one third. The second transition is said to be concluded when the service sector overtakes the industrial sector in size of labor force. But there are elements of arbitrariness in the definitions and some exceptions may be possible. (Oshima 1987: 56, 58)

[9] Farms that earn income per farm household member equal to, or above, that of non-farm employees who are living in rural areas are "viable units" (Hayami 1988: 77).

[10] "Farm size" may refer to the acreage of the land, or number of households, of the farm. The large farm size advocated in this thesis for monsoon Asia rice-based economies denotes the *large size in land acreage of a farm* under village-individual dual level operation, with the basic operation level at one household or at collective/cooperative/enterprise including a number of households as share-

machinery could be used, labor saved, costs reduced and increasing returns to scale gained. However, much land was held by part-time farmers and absentees with inefficient use, while the remaining full-time farmers could not get larger land to till.

Therefore, in the 1960s, *land sale* was encouraged as the first major effort for enlarging farm size. But, generally speaking, this failed. From 1970 on, the second major effort, *land lease* was promoted, but this did not succeed much. The third major effort was *land consolidation*. This started in 1950 but did not promote land sale or lease. The fourth major effort was *commissioned agricultural work*, and the fifth *agricultural production cooperatives*[11] (collective use of private farmland as an individual-collective mixed economy, from sub-village to village-wide), while the sixth was *urban-rural joint farming* (also belonging to collective use of private farmland as an individual-collective mixed economy). In all these experiments, the private land ownership either hindered the achievement of land economies of scale, or (under village-wide collective use of private farmland) hampered the change of private parcels into non-farmland (dams, roads, canals, ponds, etc.) and could not prevent withdrawal with land and re-splitting the joined land.

In order to be viable and gain higher incomes, farmers and cooperatives lobbied for government *protection* of the domestic rice production. The ruling party yielded, fearing the loss of their votes. Thus costs and prices rose well above prevailing international levels. The government subsidies to farmers resulted in major budget deficits. Rice import prohibition during 1961-93 caused international protests. Following a natural disaster and loss of rice self-sufficiency in 1993, since 1994, cheap rice has had to be imported and rice self-sufficiency restored by continuous subsidies. Therefore, in Japan, the critical issue is how to

---

holders and/or employees.

[11] There are various types of agricultural production collectives, cooperatives and enterprises in the world, many overlaps among them and much confusion in using these terms. It is impossible in this thesis to clarify them and put a "correct" label on each. Nevertheless, a rough demarcation among them may be seen from the land ownership point of view: in a production collective, land is collectively owned; in a production cooperative, land is privately owned but collectively used to some extent; while a production enterprise is a unit of accounting and operation assuming sole profits and losses, thus could be either a collective or cooperative or household.

consolidate and enlarge the fragmented small farms.

The fragmented small farms were efficient in a low wage economy since they were conducive to development and diffusion of land-saving and scale-neutral technology, dispersion of natural risks, and provision of employment to peasants without non-grain agriculture and off-farm job opportunities. But in a high wage economy, they hamper the achievement of land economies of scale, and waste resources of land, labor, capital, management, and technology. This problem is common to all rapidly industrializing economies with limited land and reduced working population in agriculture (although their degrees of fragmentation and smallness of farm size may vary). Of other rice-based economies under private land ownership in monsoon Asia, Taiwan and South Korea replicated the Japanese model. (Hayami & Yamada 1991: 7). Malaysia, Thailand, Indonesia and the Philippines; Bangladesh, India, Pakistan, Sri Lanka; Bhutan and Nepal are generally at lower stages of the model. Once their industrialization has led them into the high wage economy, their fragmented small farm structure also would prove to be inefficient. (Zhou, Jian-Ming 1996)

Therefore, fragmented small farms have become the *remaining* or *last* obstacle imposed by the monsoon to sustainable agricultural and rural development[12] in monsoon Asia (Oshima 1987: 65). This problem has also been taken as an argument against land reform to the feudal landlord ownership in other rice-based economies of monsoon Asia, on the grounds that the Japanese experience has demonstrated that the benefits of scale economies will be lost if estate farming is dissolved. (Koppel 1993: 4. Takahashi 1993: 107). Although substantial analysis of this problem has been made by many economists in this field for many years, fundamental solutions have not yet been found (e.g., Bray 1986[13]. Oshima 1987. Hayami 1988. Rothacher 1989. Hayami & Yamada 1991. Oshima

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[12] In 1991, FAO/Netherlands Conference on Agriculture and the Environment defined the essential and interdependent goals of sustainable agricultural and rural development as "Food security, to be obtained by ensuring an appropriate and sustainable balance between self-sufficiency and self-reliance; employment and income generation in rural areas, particularly to eradicate poverty; and natural resource conservation and environmental protection." (SDD-FAO 1995: 1)

[13] Bray recommends to stop rice production as she ends her book with such a belief that "The chief problems of Japanese agriculture today seem largely to be caused through Japanese farmers' reluctance to *abandon* growing rice." (Bray 1986: 217)

1993. Francks 1995[14]. NIRA 1995[15]).

III. The Chinese Model

The Chinese model of rural development constituting a third way between the centrally planned economy and full privatization of the means of production, started in 1978 with 12 major features or stages.

1. *Institutional changes for a small-scale farming and collective-individual mixed economy* (1978-83). Land was collectively owned by the village, but contracted to households for fulfilling state procurement output quotas of grain and other major agricultural products and disposing of surplus output, which brought about huge incentives for peasants to increase production. Land was distributed equally in terms of quality, quantity and distance, hence the *Equal Land System*, creating numerous fragmented small farms. The village had the duty of carrying out general management and providing services, thus village-household dual level operation of land, with the households as the basic level. 2. *Government policies supporting rice production and rural development.* (Technological progress was embodied in features 3-8 and 10-12). 3. *Construction of rural infrastructure.* 4. *Higher yields and multiple cropping of rice and other grains.* 5. *Diversified cropping and non-crop agriculture.* 6. *Off-farm employment.* 7. *Peasant migration to cities and work in town and village firms.* 8. *Agricultural mechanization with small machinery.*

These eight features in general are similar to their counterparts in the Japanese model (the major differences being the individual land ownership in feature 1 and rice import protectionism during 1961-93 in feature 2 of the Japanese model) and had achieved similar positive effects by 1984 as in Japan by 1960.

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[14] Francks admits that her paper "has done no more than raise" questions (Francks 1995: 15). Answering my question whether she knew any solutions to this problem in her seminar in School of Oriental and African Studies, London, Nov. 1995, she said: "If I knew any solutions, I would become someone like the Japanese Agricultural Minister."

[15] NIRA claims that "For the time being, our objectives should focus on easing and on *partially* solving this issue" (NIRA 1995: 173).

Also similar to Japan, as the economy entered the high wage stage, increasing numbers of part-time farmers and absentees held land in inefficient use, while the remaining full-time farmers could not contract more land to be viable. Hence a second round of institutional changes around the mid-1980s (in some areas even at the beginning of the decade): 9. *Institutional changes for a large-scale farming and collective-individual mixed economy* in the forms of the *Dual Land System* (self-sufficiency land was distributed to everybody, responsibility land was contracted to everybody, or every labor force, or every agricultural labor force, or expert farmers via bidding for higher output which was the standard form), the *Leasing System* (responsibility land was leased to expert farmers via bidding for higher monetary rent), the *Single Land System* (ordinary households were sold grain for self-consumption at lower prices and given family plots for vegetables, all the other land was contracted to expert farmers via bidding) and the *Corporate-Holding System* (ordinary households gave contracted land back to the village which re-contracted it to expert farmers via bidding and paid dividends, sold grain for self-consumption at lower prices and gave family plots for vegetables to ordinary households, which in practice also was a kind of the Single Land System). In these forms, land was distributed in more compact and larger units. There were three main results. 10. *Agricultural mechanization with large machinery* now was possible. 11. *Earlier development in some (chiefly Eastern and costal) rural areas, and its promotion in other (mainly Central and Western) areas* could occur, and 12. *Introduction of more advanced technology and management, larger investment, and domestic and international markets to agriculture by urban-rural joint enterprises, and external and foreign joint and single ventures* also became feasible.

The trend of evolution of the land tenure may be from the Equal Land System, through the Dual Land System, toward the Single Land System. While the necessary condition of land consolidation and expansion was the development of non-grain agriculture and off-farm lines which could absorb surplus labor, collective land ownership minimized the bargaining power of the part-time farmers and absentees who refused to give back land. Thus the Chinese model may have found some ways to overcome the last obstacle imposed by the monsoon - the fragmented small farms - in achieving sustainable rural development, thus may be superior to the Japanese model and significant to other rice-

based economies in monsoon Asia. This is examined in detail in the following argument.

Other rice-based economies under public land ownership in monsoon Asia, Myanmar; Cambodia, Laos, Vietnam; and North Korea, may be regarded as at lower levels of the Chinese model of rural development. (Zhou, Jian-Ming 1996)

IV. The Agenda of the Thesis

Part 1 "Theories", which contains Chapters 1, 2 and 3, assesses economic theories in relation to practical issues.

Chapter 1 "Introduction" not only presents the structure of the thesis, but also examines the proximate sources and ultimate causes of the economic growth and the analytical approach used in the thesis.

Chapter 2 "Theories of Dualism, the Monsoon Asia Rice Economy and Variable Mixed Economies" discusses theories of market forces and the dual economy, with reference to monsoon Asia rice-based agriculture, the prewar "vicious circle" of poverty in monsoon Asia, the postwar initial conditions for development in monsoon Asia, and variable mixed economies. It argues that free market forces alone could not overcome the "vicious circle" of poverty and realize sustainable rural development in monsoon Asia, whereas variable mixed economy solutions have registered varying degrees of success. Mixed economy in this sense refers to multiple structures of public and private ownership, and government intervention. Variable mixed economies imply varying relations between the public and private sectors which dynamically change over time in relation to changing needs in economy and society. In particular, within the variable mixed economies, there is Nuti's model of market socialism which submits that the state-owned means of production could be leased to the individuals to be operated efficiently according to market principles. The Chinese model actually is compatible with both variable mixed economies and Nuti's model of market socialism.

Hence my *hypothesis*: the fragmented small farms as the last obstacle imposed by the monsoon in sustainable rural development of monsoon Asia may be overcome by variable mixed economies, increasingly along three main phases.

Phase 1: sub-village individual-collective mixed economy (sub-village-wide cooperative/enterprise collective use of physically withdrawable private land shares, exercising collective-individual dual level operation of large land units, with the basic operation level at one household or at a farming unit including a number of households).

Phase 2: village-wide individual-collective mixed economy.

Phase 3: either large-scale farming public-individual mixed economy or corporate-individual mixed economy (collective use of either public land, or physically unwithdrawable private land shares under corporate ownership, exercising village-individual dual level operation of large land units, with the basic operation level at one household or at cooperative/enterprise including a number of households, as a third way between the centrally planned economy and free market system).

This three-phase hypothesis is going to be tested in Part 2. Hence also the *focus* of the thesis: how to consolidate and enlarge the fragmented small farms in monsoon Asia under private and public land ownership with reference to the Japanese and Chinese models, and under corporate land ownership as a proposed new model.

Chapter 3 "Theory of Property Rights" reviews those theoretical viewpoints most relevant to the above-mentioned focus of the thesis, i.e.,
(1) incentives under private ownership and possession of public assets (including property rights, ownership, possession, incentive and Pareto efficiency, and technological efficiency); (2) achieving Pareto efficiency according to Coase (containing externalities and the Coase theorem); (3) reaching Pareto efficiency when the hypotheses of the Coase theorem are relaxed (consisting of positive transaction costs, income effects, approaches in assignment of property rights, a transaction costs approach toward the choice among private, public and corporate land ownership); (4) the evolution of property rights structures (referring to the timing of changing existing property rights structures and general methods of changing the existing property rights structures), and (5) relevant concepts of private ownership (capitalist and individual ownership).

Part 2 "Comparative Practical Studies" includes Chapters 4 and 5.

Chapter 4 "The Japanese Model versus the Last Obstacle" analyzes the significance of the Japanese model up to feature 8, and the remaining obstacle as

feature 9, make theoretical discussions, and test my hypothesis. The thesis is not aimed at repeating the analysis of the last obstacle already made by many economists, but *intends to solve it.* Hence my conjectural *Proposal 1*: Collective-individual dual level operation of physically unwithdrawable private land shares under corporate ownership, contracting land to expert farmers under the Dual Land System and Single Land System to achieve economies of scale in land. This conjectural *new model* on a mixed economy basis is different from both the Chinese and Japanese ones and may also be useful for other rice-based economies in monsoon Asia under private land ownership once the fragmented small farms have become an obstacle to their sustainable rural development. (Zhou, Jian-Ming 1997)

Other rice-based economies under private land ownership in monsoon Asia will be roughly put into four groups according to their progress along the Japanese model: Taiwan and South Korea together with Japan, to which my Proposal 1 would be applicable. Malaysia, Thailand, Indonesia and the Philippines; Bangladesh, India, Pakistan, and Sri Lanka; Bhutan and Nepal, to which conjectural Proposals 2-4 will be offered.

Proposal 2. Raising economies of scale of land should be gradual and follow the progress of non-grain agriculture and off-farm lines.

Proposal 3. New land reforms could be made by distributing compact rather than fragmented land units.

Proposal 4. Population control should be strengthened so as to avoid re-fragmentizing farms.

Chapter 5 "The Chinese Model versus the Last Obstacle" studies (1) the Chinese model in general; (2) the emergence of the last obstacle (increasing smallness and fragmentation of land due to population growth, and inefficient use of land by part-time farmers and absentees); (3) a large-scale farming and collective-individual mixed economy (Dual Land System, Leasing System, Single Land System, Corporate-Holding System, selection of expert farmers, major problems, trend of the evolution of land tenure system); (4) the functioning of large-scale farming (organizations of large-scale farmers, agricultural mechanization with large machinery, optimal size of large-scale farms, subsidies and self-reliance, and related major problems), followed by (5) theoretical discussions concerning, in particular, overcoming individual bargaining power by collective

land ownership to achieve effective large-scale farming.

Other rice-based economies under public land ownership in monsoon Asia will be generally classified into three levels: Myanmar whose land tenure system is quite similar to feature 1 of the Chinese model; Cambodia, Laos and Vietnam whose newly established nominal state - but de facto private - land ownership has resulted in both newly landless and inefficient land-holding; North Korea which still keeps a centrally planned economy. Conjectural proposals 5-7 will be submitted for them.

Proposal 5. Cambodia, Laos and Vietnam are recommended to abolish the nominal state - but de facto private - land ownership and pursue the Chinese model.

Proposal 6. In the revision of the present land tenure system for a more market-oriented rural development, Myanmar is suggested to go alongside features 2-12 of the Chinese model, and avoid turning to a nominal state - but de facto private - land ownership.

Proposal 7. North Korea is the only country in monsoon Asia and the world staying with the centrally planned economy. It is advised to pursue the various successive features of the Chinese model.

V. The Approach of the Analysis

Institutions versus Other Variables of Growth

Agricultural production is a function of many variables including institutions, technologies, policies, prices, production structures, labor, capital, education, health, weather, etc. Not least, the agriculture in China, Japan and many other rice-based economies of monsoon Asia is still vulnerable to bad weather. These variables, however, play different roles.

Oshima holds that development theories may be distinguished from growth theories in that they are concerned with structural changes.[16] Hence, they are

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[16] According to Gillis, Perkins, Roemer and Snodgrass, *economic growth* refers to a rise in national or per capita income and product. Per capita income is measured as the gross national product (the value of all goods and services produced by a country's economy in a year) divided by the population. *Economic development* implies not only economic growth but also fundamental changes in

more pertinent to developing countries whose structures and underlying institutions are the product of centuries of tradition and lack the flexibility to change with the times. In previous studies of development theories and strategies, the growth of per capita product was explained as owing to either proximate *sources* or ultimate *causes*. There was a tendency to group various inputs into the category of sources (labor, capital, education, structural change, etc.); and to group the explanations of changes in the productivity of inputs into the category of causes, the major ones being changes in institutions and technologies (broadly coinciding with ways or patterns of thinking and doing). (Oshima 1987: 47, 53)

Oshima himself studies the underlying long-term ultimate causes that sustain economic growth by assuming that growth is largely the outcome of the interplay of institutional and technological changes, as emphasized by Kuznets (Kuznets 1966), and found that it is the *institutional component* that is most important in the interaction of institutions and technologies underlying the growth of developing countries.

For example, the growth in agriculture, industry and service sectors of postwar Japan was all initiated by institutional reforms. (Oshima 1987: 5-6, 110-111, 116, 125-127, 134). The land reform was the most important factor among the postwar reforms in Japan in opening the path to rapid economic growth and in eliminating social unrest (Takahashi 1993: 106).

There are well known, typical and parallel example in China. Since the implementation of the combination of collective ownership and operation of land in advanced cooperatives during 1956-58, the production of Xiaogang Production Team of Liyuan Commune of Fengyang County of Anhui Province had been

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the structure of the economy and people's participation in these changes. The major structural changes are: (1) the rising share of industry, along with the falling share of agriculture, in national product; (2) an increasing percentage of people who live in cities rather than the countryside; (3) passing through periods of accelerating, then decelerating, population growth, during which the nation's age structure changes dramatically; (4) consumption patterns change as people no longer have to spend all their income on necessities, but instead move on to consume durables and eventually to leisure-time products and services. People of the country must be major participants in the process that brought about these changes and in the production and enjoyment of the benefits of these changes. The benefits should go to the whole people for equity rather than to a tiny wealthy minority. (Gillis; Perkins; Roemer & Snodgrass 1992: 8-9)

declining. All walkable persons including youngsters and girls had been beggars outside. By 1979, due to emigration to other rural areas, household numbers dropped from 34 to 18 and population from 175 persons to about 100. Annual per capita food ranged within 50-100 kg (i.e., an average of only 0.14-0.27 kg a day) and annual cash income 15-30 yuan. It became the smallest and poorest production team of the County. On Nov. 24, 1978, first in the whole country in the reform period, the Team Director and households initiated Bao *Gan* Dao Hu, the major form of the Household Contract System[17] in the framework of the small-scale farming and collective-individual mixed economy. 517 mu (34.46 ha) of collectively owned farmland were contracted according to population number to households equally, along with 10 farm cattle (one cattle to each two households). The state tax and compulsory sale quotas, fees to collectives (commune, brigade and team), and repayment amount of credits were also allocated in the same way. Any surplus output would belong to the households. In the autumn of 1979, the total grain output jumped to over 66,000 kg, equivalent to the sum of the past five years; oil crops rose to 17,500 kg, equal to the total in the preceding 20 years; pigs raised in the current year were 135, exceeding the number in any of the previous years. 15,000 kg of grain were sold to the state, the first of such sales since 1956, together with 12,466.5 kg of oil crops, as a new sale item. Credits were repaid for the first time in 800 yuan. As a result, the annual per capita food reached 510 kg of grain (on average 1.4 kg a day), plus 50.335 kg of oil crops. Cash income averaged 200 yuan. (Yang & Liu 1987: 12-13, 112). In the summer of 1979, Shannan District of Feixi County of the same Province implemented Bao *Chan* Dao Hu, the minor form of the Household Contract System. Although suffering from drought, high winds, pests and flood, some production teams achieved a total grain output equivalent to the sum of the past five-six years. Some poor teams eliminated poverty even in the same season even under such adverse conditions. (Chen; Chen & Yang 1993: 484). The Household Contract System proved to be a great success and enabled the provincial authority to convince other regions to adopt it (Kojima 1988: 709-710).

Thus, with the same technologies, government policies, prices and weather,

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[17] The major and minor forms of the Household Contract System will be elaborated in Chapter 5.

farmers under different local institutions could achieve different production results. Institutional changes giving high incentives to farmers could raise production even in the same season and year.

Of course, for achieving sustainable rural development, institutional changes are not enough. They need to be followed by technological and structural changes, e.g., construction of rural infrastructure, higher yields and multiple cropping of rice and other grains, diversified cropping and non-crop agriculture, off-farm employment, peasant migration to cities and work in towns, and agricultural mechanization with small machinery.

But once production has reached the frontier permitted by the established institutions, even though the increase of production is technologically still possible (as agricultural mechanization with large machinery), it tends to be hampered by vested interests, just as the ninth feature (persistence of the fragmented small farms) of the Japanese model has suggested. At this stage, another round of institutional changes is needed to allow sustainable rural development, just as the ninth feature (a large-scale farming and collective-individual mixed economy) of the Chinese model has shown.

Therefore, Barker, Herdt and Rose conclude that of so many variables for rural development, the institutional changes are the keystone (Barker; Herdt & Rose 1985: 157).

Narrative Analysis versus Econometric Models

Oshima points out that in development studies, while the proximate sources of the growth were quantifiable, the longer range ultimate causes were not easily quantified, and it was necessary to depend largely on *narrative analysis* or *analytical description* to understand the mechanisms involved. Thus, the "bottom lines" in the studies of the growth experience of nations became rather ambiguous and indefinite since the major explanatory causes, institutions and technologies, were not measurable and their interactions difficult even to identify in a formal manner. (Oshima 1987: 53. Also see Matthews et al. 1982 for Britain; Carre, Dubois & Malinvaud 1975 for France; Ohkawa & Rosovsky 1973 for Japan and Abramovitz 1973 for USA). Econometric models thus proved to be of limited use as their results turned out to be highly unstable "in the face of minor modifica-

tions in data specification, observation period and estimation method" (Matthews et al. 1982: 202).

All this meant that long-term analysis could not dispense with historical narrative analysis or analytical description of the development of institutions and technologies as these were important in understanding the role of the parameters, especially in long-term studies. To keep this type of analysis from becoming too diffuse, it was necessary to cast it in transition stages, to partition historical spans, facilitating the analysis of each portion. (Oshima 1987: 53-54)[18]

In Chapter 2, the prewar "vicious circle" of poverty in monsoon Asia will be assessed which implies historical narrative analysis. Also, keeping in mind that so many of the features of the Japanese and Chinese models are important, and taking into consideration that this thesis has to focus on how to overcome the fragmented small farms, the emphasis of the analysis has to be on the ninth feature of the Japanese and Chinese models, both concerning institutional changes. Therefore, in this thesis, *the Oshima approach of narrative analysis or analytical description* is used.

VI. Tentative Contributions of the Thesis

Chapter 2 "Theories of Dualism, the Monsoon Asia Rice Economy and Variable Mixed Economies" reviews a number of postwar initial economic and social conditions faced by developing economies in monsoon Asia raised by

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[18] Oshima gives two examples of what is meant by historical narrative analysis. (1) Contributing to the rise in total factor productivity in the US in the early decades of the present century (in contrast to its slow growth in the previous century) was the rapid spread from the 1920s of new types of mechanical equipment powered by electric motors and internal combustion engines displacing large numbers of unskilled workers on farms and in industry. Contributing to the quick dissemination of this equipment were the wage increases following immigration restrictions enacted as a result of strong pressures from the American Federation of Labor, together with the pent-up demand for manufactured products from World War One (WWI). (2) In the case of postwar Japan, it was the new institutions introduced by the Allied Occupation and later modified by the Japanese that democratized and demilitarized basic economic and social institutions in the postwar years. Additional institutions were developed that succeeded in motivating peasants, workers, managers and bureaucrats to great heights of productivity as technologies were efficiently imported, adapted, disseminated and utilized. (Oshima 1987: 53-54)

Kuznets, Myrdal and Ishikawa. While these authors put Japan together with developed countries in the West, I find that they were also applicable to the immediate postwar Japan. This finding paves the way for the later arguments that Japan had the similar problems and tasks as other rice-based economies in monsoon Asia, and that the Japanese model of rural development is highly relevant to them. According to the concept of variable mixed economies, I later classify various mixed economies in Chapters 4 and 5. These include (1) individual-cooperative mixed economy; (2) sub-village and (3) village-wide individual-collective mixed economy; (4) corporate-individual mixed economy; (5) small-scale farming and (6) large-scale farming collective-individual mixed economy; (7) nominal state-individual mixed economy, and (8) public-individual mixed economy. In front of the global wave of privatization and blind worship to free market forces, I stress that only by variable mixed economies, rather than free market forces alone, can sustainable rural development and sustainable economic development in general be achieved. In this sense, the implication of this thesis would be beyond monsoon Asia and rural development.

Chapter 3 "Theory of Property Rights" analyzes the importance of negative *pecuniary* externalities and the relationship between the negative technological and pecuniary externalities. It identifies four kinds of negative externalities in time sequence; the definition of internalization of negative externalities, and the distinction between the elimination of negative externalities in financial terms and that in physical terms. It provides a more complete list of positive transaction costs, and systemizes five approaches in the assignment of property rights for eliminating negative externalities. Using the Coase transaction costs approach, it explores the fundamental reason why the consolidation and expansion of the fragmented small farms have been so difficult under the Japanese model but much smoother under the Chinese model, and explains that corporate land ownership could be a suitable way for overcoming this last obstacle in the rice-based economies under private land ownership in monsoon Asia. Accordingly, authorities in the property rights theory field such as Coase, Demsetz, Furubotn and Pejovich, Laffont, Milgrom and Roberts, and Varian are assessed and criticized.

In Chapter 4 "The Japanese Model versus the Last Obstacle" and Chapter 5 "The Chinese Model versus the Last Obstacle", I synthesize the rural

development approaches in the rice-based economies of monsoon Asia into two major models, the Japanese and Chinese ones, display their major similarities (features 1-8) and differences (feature 9 and its results), and arguably indicate the superiority of the Chinese model in overcoming the last obstacle. Other rice-based economies in monsoon Asia under *private* land ownership are generally grouped as at the same stage or lower stages of the Japanese model and those under *public* land ownership at lower stages of the Chinese model. Such systemizations are not yet found in the literature reviewed and have been appreciated by the Food and Agriculture Organization of the United Nations, as under its invitation I presented a paper on this in its workshop held in Godollo, Hungary in Apr. 1996 and published by FAO in 1997. (Zhou, Jian-Ming 1996)

In Chapter 4, I maintain that the major efforts - and their limits - in overcoming the fragmented small farms obstacle in Japan since the 1970s are not actually "a Japanese approach to land extensive farming" as acclaimed by Tabata, but a replication of those of the Chinese elementary cooperatives up to Apr. 1956. I thus have proposed a new model to overcome the last obstacle in Japan, which is different from both the Japanese and Chinese ones, and has also been appreciated and published by FAO (Zhou, Jian-Ming 1997). For the other rice-based economies under private land ownership in monsoon Asia, to those where the fragmented small farms have become an obstacle, I also have recommended this conjectural model; to those where rural development is still at lower stages, I point out that not only the refusal to carry out a complete land reform against the feudal land ownership is wrong, but also the establishment of large-scale farms with large machinery before rural industrialization can absorb surplus peasants thus making them landless and crowding them into city slums is incorrect.

In Chapter 5, according to material from the beginning of the 1980s until 1997, I systematically analyze the large-scale farming and collective-individual mixed economy to overcome the last obstacle in China. For Cambodia, Laos and Vietnam, I point out that their newly established nominal state ownership - but de facto private ownership - of land may not prevent the appearance of new landlessness in the low wage economy and inefficient holding of land by part-time farmers and absentees in the high wage economy, criticize the designers including Hayami, and recommend the abolition of such a nominal state - but de

facto private - land ownership.

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Chapter 2
Theories of Dualism, the Monsoon Asia Rice Economy and Variable Mixed Economies

I. Dualism[1]

Concept of Dualism

The concept of dualism or dual economy was put forward by Preobrazhensky in 1924 and re-discussed by Lewis, Jorgenson, Fei and Ranis and many others since the 1950s (Preobrazhensky 1924. Lewis 1954. Jorgenson 1961. Fei and Ranis 1961). The interpretation of dualism varies according to different authors.

In many underdeveloped countries, two basic economic sectors and/or regions co-exist with broadly polarized features: modern industry, mainly in cities; and traditional agriculture in rural areas. The main features have been set out in Table 2.1. In such a dual economy, there might be some modern farms and plantations and traditional handicraft as exceptions to the above distinctions. (Agarwala 1983: 5). Dual economy or dualism is two-sided by definition, and multi-dimensional in its effects.

There is an important difference between *densely* and *sparsely* populated economies within the terms of reference of the dualism debate. The former stretch all the way from Southeastern Europe to Southeastern Asia and also exist in some African regions, while the latter exist mainly in South America and Saharan and Sub-Saharan African countries. (Nurkse 1953: 32, 49-50). Here, the emphasis of analysis is on the densely populated economies, for they are more relevant to the rice-based economies of monsoon Asia.

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[1] The theory of dualism, in a narrow sense, may refer to "what is dualism". In a broad sense, it may also include "how to overcome dualism" which, however, overlaps other theories in development economics. Hence, it is used in the narrow sense here.

Table 2.1 Summary of the Interpretations of Dual Economy in the Context of Densely Populated Economies	
Modern industry	Traditional agriculture
1. Highly capitalistic system introduced from the West.	Pre-capitalistic system of the East.
2. Unlimited wants, monetized and profit-seeking.	Self-sufficient, limited wants for subsistence; either limited markets or non-monetary and non-profit-seeking.
3. Capitalist ownership hiring wage labor.	In monsoon Asia, exceptional feudal serf-holder ownership giving subsistence land to serfs; dominance of feudal landlord ownership renting out small parcels to tenants; plus small owner-peasants, all forming individual farming units. (See Table 2.2)
4. Inputs are combined according to marginal productivity rule, seeking economies of scale and scope.	Production is organized on a family-basis; tasks are allotted according to sex and age; and rewards to members according to average product.
5. High mobility of factors of production.	Immobility of factors of production.
6. Input with little land but much capital.	Input with much land but little capital.
7. Diversified output as manufactures for both consumption and investment.	Undiversified or monoculture output of seed for production, forage for animals and food for consumption.
8. Developed hard and soft infrastructure.	Little hard and no soft infrastructure.
9. Sophisticated banking and other modern services.	Little/no banking or other modern services.
10. Good transport and telecommunications.	Primitive transport and little/no telecommunications for peasant farmers.
11. Electric and gas power networks.	Little/no electric and gas power networks.
12. Mechanized equipment.	Hand and animal tools.
13. Advanced technologies.	Backward technologies.
14. Rich.	Very poor.
Sources: 1 & 2. Boeke 1953. United Nations 1955. 3. Myrdal 1972: 198-207. 4. Barber 1970: 36-39. 5. Boeke 1953. 6. Jorgenson 1961. Lewis 1954: 407. 7. Fei & Ranis 1964. 8-11. Own definitions. 12 & 13. Eckaus 1955. Fukuoka 1955. Higgins 1968. Hirschman 1958. 14. Agarwala 1983: 3-5.	

Table 2.2 A Brief Interpretation of Feudal Land Ownership	
Feudal land ownership refers to a system whereby the feudalists owned land and partially held producers. It includes feudal serf-holder ownership (typical feudalism) and feudal landlord ownership.	
Feudal serf-holder ownership.	Feudal landlord ownership.
1. The feudal serf-holder (or serf-owner, seigneur, lord) owned land (manor). He (she) held villeins (serfs) in semibondage.	The feudal landlord owned land. He (she) held tenant in semibondage not in theory but in reality.
2. The villein held subsistence land owned by the lord. The villein must pay tribute to, but also gained protection from, the lord. The villein could not leave the lord without his permission.	The tenant rented small parcels from, and must pay rent to, the landlord according to contract. In theory, peasants were allowed to leave the landlord, but in practice had little or no alternative.
3. High tribute in services (typically, tilling demesne - land used by the lord), in kind and later in money; tribute in money is also called neo-feudalism; but the three forms could co-exist.	High rent in services, in kind and later in money; rent in money is also called neo-feudalism; but the three forms could co-exist.
4. Dominant in Europe in the Middle Ages; in Bhutan and Nepal nowadays.	Dominant in monsoon Asia in pre-war times; still present in South and Southeast Asia.
Note: One view treats the serf-holder system as a part of feudalism including the English lord-villein system (but Russian serfdom as an exception belonging to the slavery system). Another view regards the serf-holder system as a part of the slavery system rather than feudalism, and it did not contain the English lord-villein system which belonged to feudalism. Both are agreed that the English lord-villein system was feudal and Russian serfdom was slavery, but disagree with whether the serf-holder system in general belonged to feudalism or slavery. This brief interpretation, however, does not intend to be involved in such debates. Sources: Chernow & Vallasi 1993: 942-943, 1684, 2480, 2890. Jiang, Xue-Mo 1985: 12. Cihai 1978: 13-14. Oshima 1993: 10.	

Three Characteristics of the Traditional Agriculture in the Densely Populated Dual Economy

Disguised unemployment.

Nurkse points out that disguised unemployment (DUN) means that a large part of the population engaged in agriculture could be removed without reducing agricultural output, even though the technical methods in use (technology,

equipment, machinery, seeds, drainage, irrigation, etc.) remain unchanged. The term DUN implies a condition of family employment in peasant communities. A number of people are working on farms or small peasant parcels, contributing virtually nothing to output, but subsisting on a share of their family's real income. (Nurkse 1953: 32-33)

The unemployment is disguised in the sense that personal identification is difficult or even impossible. The people may all be occupied and no one may consider himself (herself) to be idle. Thus, this term is not applicable to wage labor in capitalist industry, where the unemployed people are identifiable although some labor hoarding may occasionally occur. (Nurkse 1953: 33)

In some countries, DUN might be a seasonal phenomenon, for at the peak of the harvest season, all the available labor is needed and is actively at work. Seasonal unemployment is likely to be significant where an annual crop cycle, e.g., of cereal food crops, dominates farm activity and where this activity has not developed more advanced forms such as dairy farming. But even where DUN is mainly a seasonal matter, making more productive use of labor is still possible. In some countries, however, the peak harvest load might still be managed by a smaller labor force if organizational changes, such as consolidation of parcels, could be carried out. (Nurkse 1953: 35)

There are also countries where DUN is more than seasonal and can exist throughout the year. In Egypt, for example, the various crops, some of which are harvested more than once a year, tend to overlap so that there is hardly any time of year when some crop is not being harvested. In such circumstances, any under-employment that may exist must be more or less continuous. (Nurkse 1953: 36)

Unlimited supply of labor.

Lewis uses this term to refer to the nature of the supply of labor to the advanced sector using modern methods of production. The labor supply curve is horizontal at the given wage rate over a considerable range. It means an infinitely elastic labor supply at the prevailing wage. The supply of labor is unlimited so long as the supply of labor at this price exceeds the demand. (Lewis 1954: 401-403. Agarwala 1983: 6-7)

Wage gap.

Agarwala conceptualizes this term in two senses. In its first sense, the wage gap represents the excess of the earnings of labor over its marginal

productivity in traditional agriculture. In its second sense, it refers to the gap between the earnings of labor in advanced industry and the earnings of labor in traditional agriculture. In the first sense, the marginal productivity of labor in traditional agriculture is zero or very low, but it is still paid a positive wage, causing a wage gap. In the second sense, the industrial wage rate may lie above the wage in agriculture, forming a further wage gap. (Agarwala 1983: 7)

The particular characteristics of disguised unemployment, unlimited supply of labor and wage gap in monsoon Asia will be discussed later in this chapter.

The Significance of Dualism

It should be shown that in certain circumstances, a dual economy can grow spectacularly and flourish.

The most evident example is Japan, where the transformation of dualism between industry and agriculture has brought huge changes in the economy, society and Japan's international power within 40 years. However, Japanese dualism also implies the co-existence of bigger, large-scale, capital intensive, high wage enterprises and smaller scale, comparatively labor intensive, low wage businesses. Therefore there has been dualism within industry as well as dualism between it and agriculture. Other examples include Italy during the period of the so-called "miracle" of 1948 to 1973, as well as Taiwan and South Korea over the last 30 years. The further case, of course, despite the range of false starts and new starts of different policies, has been China itself. In fact, the issue of dualism is highly relevant to the exploration for land tenure systems suitable to the sustainable agricultural and rural development of China, as well as other rice-based economies of monsoon Asia.

However, none of this in itself contradicts the mainly negative analysis of the mechanisms and effects of dualism of the original postwar literature of Nurkse, Lewis, Myrdal and others as analyzed in this chapter. Moreover, it is strongly arguable that these economies which have managed to exploit dualism have done so by countering its negative effects by economic or social policies. We characterize such policies as a "mixed economy" framework (see later in this chapter), using the concept to refer to the symbiotic relations of public and private economic power, rather than simply to ownership per se.

II. Market Forces and the Dual Economy

The "Vicious Circle" of Poverty

Free market forces alone may not overcome, but reinforce, dual economy or dualism, hence could realize sustainable rural development. This is intrinsic to the theory of dualism in the various senses as indicated above.

The "vicious circle" of poverty within poor rural areas.

Nurkse states that the "vicious circle" of poverty implies a circular constellation of forces tending to act and react upon one another in such a way as to keep a poor country in a state of poverty. Thus, in a famous human analogy, a poor man may not have enough to eat; being under-fed, his health may be weak; being physically weak, his working capacity is low, which means that he is poor, which in turn means that he will not have enough to eat; and so on. A situation of this sort, relating to a country as a whole, can be summed up as: "A country is poor because it is poor." (Nurkse 1953: 4)

The "vicious circle" in capital formation in economically backward areas.

According to Nurkse, there are matters of unilateral causation that can keep a country or area poor, for instance, lack of mineral resources, insufficient water or barren soil. Some of the poor areas are poor partly for such reasons. But in all of them, their poverty is also attributable to some extent to the lack of adequate capital equipment, which can be due to the small inducement to invest as well as to the small capacity to save. (Nurkse 1953: 5)

Further, for Nurkse, the inducement to invest is limited by the size of the market. The factors determining the size of the market are not simply money demand, number of people or physical area. Transport facilities are important. Reductions in transport costs (artificial as well as natural) do enlarge the market in the economic as well as the geographical sense. But reductions in any cost of production tend to have that effect. So the size of the market is determined by the general level of productivity. In its turn, the level of productivity depends largely on the use of capital in production. But the use of capital is inhibited, to start with, by the small size of the market. (Nurkse 1952: 256)

In Nurkse's model, the supply of capital is governed by the ability and willingness to save; the demand for capital is governed by the incentives to

invest. A circular relationship exists on both sides of the problem of capital formation in the poverty-ridden areas. On the supply side, there is a small capacity to save, due to the low level of real income. The low real income is a reflection of low productivity, which in its turn is due largely to the lack of capital. The lack of capital is a result of the small capacity to save, and so the circle is complete. On the demand side, the inducement to invest may be low because the small size of the market makes it unprofitable to apply modern capital equipment by any individual entrepreneur in any particular industry to produce products or services. The small size of the market is due to the small buying power of the people, which is due to their small real income, which again is due to low productivity. The low level of productivity, however, is a result of the small amount of capital used in production, which in its turn may be caused at least by the small inducement to invest. The low level of real income, reflecting low productivity, is common to both circles. (Nurkse 1953: 4-5)

Even though in economically backward areas, Say's Law - "Production creates its own demand" - may be valid in the sense that there is no "deflationary gap" through excessive savings, it never is valid in the sense that the output of any single industry, newly set up with capital equipment, can create its own demand. The people engaged in a new industry, say, shoe industry, will not wish to spend all their income on their own products. If in the rest of the economy nothing happens to increase productivity and hence buying power, the market for the new product is likely to prove deficient. If people outside the new industry do not have enough food, clothing and shelter, they cannot let go the little they have of these elementary necessities in order to buy a pair of shoes, the new product, every year. (Nurkse 1953: 9)

"Backwash Effects" and "Spread Effects"

"Backwash effects".

Myrdal argues that if market forces were unhampered by any policy intervention, industrial production, commerce, banking, insurance, shipping and almost all those economic activities which in a developing economy tend to give a bigger than average return, and science, art, literature, education and higher culture generally would cluster in certain localities and regions, leaving the rest

of the country more or less in a backwater (Myrdal 1957: 26). The expansion in an advanced industrial locality tends to have "backwash effects" in other localities via "economic factors" and "non-economic factors".

The "backwash effects" via "economic factors". Myrdal claims that by themselves, the movements of labor, capital, goods and services tend to have positive results for the advanced industrial localities, and negative ones in the poor rural areas, thus enlarging the inequalities between them. (Myrdal 1957: 27)

(1) *Migration.* The localities and regions where economic activity is expanding will attract net immigration from other parts of the country. (Myrdal 1957: 27). This movement of the labor force may have two negative results.

* *Senilization and feminization of the agricultural labor force.* Both Myrdal and Holland argue that migration is always selective, at least with respect to the migrant's age and sex. As more and more young males emigrate, senilization and feminization will happen in the agricultural labor force. This movement by itself tends to favor the rapidly growing communities and disfavor the others. [Myrdal 1957: 27-28. Holland 1976 (a): 109-110]

* *Urban congestion.* Holland further makes the analysis that while enlarging the inequalities between the advanced urban areas and the backward rural ones, the migration can also create problems for the former, such as urban congestion. It is clear that modern urban problems are not caused exclusively by immigration. For one thing, internal and external economies of scale in production can congest sites without notable expansion of labor. This will occur if the substitution of capital for labor has reached a point where output can be expanded without job creation, which now is increasingly a feature of Western manufacturing industry. [Holland 1976 (a): 111]

- *Indirect social costs.* Such costs will aggravate urban problems when the social infrastructure needs of immigrant labor are not fully paid for by those firms which employ the immigrants. In practice, firms will pay some of the costs of providing social infrastructure to the extent that they are reflected in higher local taxation. But the precise incidence of costs will depend on the relative share of firms and individuals in the local taxation system. In some cases, firms are not obliged to contribute to local taxes and therefore avoid the costs of social overhead capital (SOC). [Holland 1976 (a): 112].

- *Insufficient housing or health facilities for immigrants.* Although local

authorities may be responsible for such SOC facilities as transport, sewage and power supply, they may not be responsible for, or able to provide, enough housing or health facilities for immigrants. The immigrants may have to meet these costs from their earnings, which they cannot afford. Hence a slum problem. [Holland 1976 (a): 112, 118]

- *Higher social costs.* The costs of providing SOC facilities increase substantially with urban size, from the viewpoint of interregional resource use. In other words, the SOC costs for an immigrant and his dependents in a large urban area of labor inflow can be higher than in smaller urban areas in the region from which they have migrated. [Holland 1976 (a): 112]

Such urban congestion problems are dramatically evident in the densely populated countries of monsoon Asia.

(2) *Capital movements.* Myrdal also discovers that in the centers of expansion, increased demand for capital will spur investment, which in its turn will increase incomes and demand and cause a second round of investment, and so on. Saving will increase as a result of higher incomes but will tend to lag behind investment in the sense that the supply of capital will steadily meet a brisk demand for it. (Myrdal 1957: 28)

In other regions the lack of new expansionary momentum implies that the demand for investment capital remains relatively weak. Also, the supply of savings will be low since incomes are low and tending to fall. (This is a standard enough argument in Keynesian demand theory and multiplier analysis. But Myrdal's contribution is, first, to give it a spatial dimension and second, to argue that the process is asymmetric and may be irreversible.) But this is not the only problem. The banking system, if not regulated to act differently, tends to become an instrument for siphoning off the savings from the poorer regions to the richer and more progressive ones where returns on capital are high and secure. (Myrdal 1957: 28)

(3) *Trade.* Myrdal claims that the freeing and widening of markets will often confer competitive advantages on the industries in already established centers of expansion, which usually work under conditions of increasing returns, and that the handicraft and industries existing earlier in the other regions are thwarted. For example, after Italy's political unification and the pulling down of the internal tariff walls in the last century, industry in the northern provinces had

such a lead and was so much stronger that it dominated the national market and suppressed industrial efforts in the southern provinces which, as a result, remained mainly agricultural. Holland analyzes both this and another example on a still larger scale - the long economic stagnation after the Civil War up to WWII of the southern states of the US. This systematic bias of trade between regions forms also a part of the mechanism of exploitation in the economic relations between a metropolitan country and its colonies. [Myrdal 1957: 28-29. Holland 1976 (a): 56-59. Holland 1976 (b): 97-110]

(4) *Transportation.*[2] Myrdal writes that if left to themselves, those regions which had not been touched by the expansionary momentum could not afford to keep up a good road system, and all their other public utilities would be inferior, thus increasing their competitive disadvantages. Railways will be built so as to meet the effective demand for transport, i.e., without much consideration for the needs of those regions. (Myrdal 1957: 29)

The "backwash effects" via "non-economic factors". Myrdal mentions that these "non-economic factors" are various. Here, health and education are taken as examples. The poor regions, unaided, could hardly afford much medical care and their population would be less healthy and have a lower productive efficiency. They would have fewer schools and their schools would be grossly inferior, keeping the population largely illiterate. (Myrdal 1957: 30)

"Spread effects".

Myrdal stresses that against the "backwash effects" there are, however, also certain centrifugal "spread effects" of expansionary momentum from the centers of economic expansion to other regions. The whole region around a nodal center of expansion should gain from the increasing outlets of agricultural products and be stimulated to technical advance all along the line. (Myrdal 1957: 31)

There is also another line of centrifugal "spread effects" to localities further away, where favorable conditions exist for producing raw materials for the growing industries in the centers. If a sufficient number of workers become employed in these other localities even consumer goods industries will be given

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[2] Myrdal regards transportation as a non-economic factor, but it would be more appropriate to treat it as an economic factor.

a spur there. These, and also all other localities where new starts are being made and happen to succeed, become in their turn new centers of self-sustained economic expansion, if the expansionary momentum is strong enough to overcome the "backwash effects" from the other center. (Myrdal 1957: 31) Accordingly, knowledge of science, technology and management can also spread.

The interaction of the "backwash effects" and "spread effects".

There are three main outcomes of the interaction. Myrdal submits that the "spread effects" of momentum from a center of industrial expansion to other localities and regions, operating through increased demand for their products, weave themselves into the cumulative social process by circular causation in the same fashion as the "backwash effects" in opposition to which they set up countervailing changes. In the marginal case, the two kinds of effects will balance each other. But this balance is not a stable equilibrium, for any change in the forces will start a cumulative movement upwards or downwards. (Myrdal 1957: 31-32)

In reality, (1) *expanding*, (2) *stagnating* and (3) *regressing* localities interact continuously on different levels, with multiple graduations between the extremes (Myrdal 1957: 32).

Insofar as the net "spread effects" are positive, economic standards in the whole country are given a lift. It is quite possible that all the regions in a country may be inside this margin of balancing forces - if the initial starts are many and strong and successful enough and if the centrifugal "spread effects" work relatively effectively. The problem of inequalities then becomes a problem of the different rates of progress between regions in the country. Ordinarily, however, even in a rapidly developing country, many regions will be lagging behind, stagnating or even becoming poorer. There would be more regions in the last two categories (stagnating and regressing) if market forces along were left to decide the outcome. (Myrdal 1957: 32)

Myrdal claims two trends exist as follows. First, *in rich countries, the "spread effects" are stronger.* The higher the level of economic development that a country has already attained, the stronger the "spread effects" will usually be. For a high average level of development is accompanied by improved transportation and communications, higher levels of education, and a more dynamic communion of ideas and values - all of which tends to strengthen the forces for

the centrifugal spread of economic expansion or to remove the obstacles for its operation. With the extinction of abject poverty on a large-scale goes a fuller utilization of the potentialities of the human resources in a nation. This is one of the reasons why rapid and sustained progress becomes an almost automatic process once a country has reached a high level of development. (Myrdal 1957: 34)

Second, *in poor countries, "backwash effects" are stronger.* Part of the curse of a low average level of development in an under-developed country is the fact that the "spread effects" there are weak. This means that *as a rule the free play of the market forces in a poor country will work more powerfully to create regional inequalities and to widen those which already exist.* That a low level of economic development is accompanied as a rule by great economic inequalities represents itself a major impediment to progress. It tends to hold the underdeveloped countries down. This is one of the interlocking relations by which in the cumulative process "poverty becomes its own cause". (Myrdal 1957: 34)

Therefore, in the interaction of advanced industry and poor agriculture, the market itself normally tends to increase the inequalities between these two sectors. The free play by the market forces and laissez-faire may not overcome the dual economy in underdeveloped countries; they will tend to reinforce it. Thus, the free market forces alone could not realize sustainable rural development.

III. Monsoon Asia Nature and Rice Culture

Section II has argued that free market forces alone may not overcome the "vicious circle" of poverty and realize sustainable rural development. Before going on to Section IV which will outline evidence that, in particular, they could not overcome the prewar "vicious circle" of poverty in monsoon Asia, background material on monsoon Asia nature and rice culture is provided here.

Geography and Climate

Monsoon distribution among regions of the world.

The word monsoon derives from the arabic "mansin", meaning seasonal wind (Robinson 1967: 20). A monsoon climate is one that is dominated by

seasonal winds that blow for half of the year in one direction and then reverse themselves (Barker; Herdt & Rose 1985: 22). Ginsburg claims that each continent exhibits the seasonal reversal of winds and rains known as the monsoon effects, but nowhere are these reversals as notable as in Asia. In North America there is a smaller relevant land mass. In South America only a small part of the continent lies in the higher latitudes and the winter monsoon effects are minimized. In Africa, no part of the continent lies within the higher latitudes and the monsoon effects are restricted to relatively limited areas. Europe's western areas are most strongly influenced by the Gulf stream westerly winds of the upper middle latitudes, and the climate is predominantly maritime all the year round, except in the Mediterranean. Of the vast land mass of Australia, too, a relatively small area is involved. (Ginsburg et al 1958: 8)

However, in Asia, there is not just one monsoon, but three distinct monsoon patterns: the Indian, the Malayan and the Japanese (Spencer & Thomas 1971: 175). The Indian monsoon controls air movements over Pakistan, India, Sri Lanka, and the west coast of Myanmar. The Malayan monsoon affects Indonesia, the Philippines, most of mainland Southeast Asia, and most of China. The Japanese monsoon impacts Korea, part of northern China, most of northeast China, and Japan. (Barker; Herdt & Rose 1985: 22-23). The monsoon countries include nearly all of Southeast Asia and the densely settled portions of China, Japan, Sri Lanka, India, and Bangladesh. The monsoon regions exclude Hokkaido and Manchuria in the northeast, Mongolia in the north, western China, Afghanistan, and Pakistan in the west, the southeastern islands of Indonesia, and India west and south of New Delhi. (Oshima 1987: 20)

Major cause of the Asian monsoon.

Oshima explains that the reversal in direction of winds and rains in Asia is due to the heating and cooling of the world's largest land mass, especially in the "vast complex of mountains and plateaus" centered in Tibet and bounded in the south by the Himalayas, in the west by the Pamirs, in the north by the mountains of Xinjiang, and in the east by the southwestern mountains of China - a range of mountains and plateaus extending 5,000 miles. (Oshima 1987: 19). The seasonal heating and cooling of this world's largest land mass makes for major seasonal variations in climate. In winter, when the interior regions are cold, a semi-permanent high pressure belt forms within the northern interior of the

continent, and strong, cold winds, outflowing as polar continental air masses from the anticyclones within the belt, bring winter to most of the continent. In summer, the rapid and continuous heating of the interior results in lower pressures and in the inflow of tropical maritime air from the continent's margin. Since the outflowing winds are land-originated and usually do not pass over large bodies of water, they are dry, and the winters also tend to be dry. Conversely, in the summer the generally weaker inflows of air from the eastern and southern seas are humid and carry with them the moisture that for much of Asia makes summer the rainier season. (Ginsburg et al 1958: 7). Commonly in Asia, as Barker, Herdt and Rose note, the monsoon season is referred to as the wet season since the rest of the year is usually relatively dry (Barker; Herdt & Rose 1985: 22).

Weather patterns and population distribution in monsoon Asia.

Oshima stresses that although the typical climate of the region is divided between a wet season and a dry season, the weather patterns are varied. Calcutta, Rangoon, Bangkok, Saigon, Guangdong and Manila have heavy rains in the summer months. Toward the equator (Singapore), the rainfall pattern is less distinct, and it is reversed south of the equator. Colombo experiences two peaks of precipitation, one coming in the late fall. In much of the temperate zone, the summer is less pronounced (Barker; Herdt & Rose 1985: 22-23). In Malaysia and Sri Lanka, as in Japan and Taiwan, there are light rainy months before the summer monsoons. (Oshima 1987: 20)

The mountain core of the huge land mass acts as "the hub of a colossal wheel", the spokes of which are formed by some of the greatest rivers of the world, spiralling outward from the rain-catching and snow-capped slopes of the Hindu Kush, Pamirs, Himalayas, Karakorum, Altyn Tagh, Tian Shan, and the other ranges of the highland core. The great rivers flowing eastward and southward define the Asia that is populous and developed. These rivers are the Indus, the Ganges, the Brahmaputra, the Irrawaddy, the Mekong, and the Yangtze, besides a number of smaller rivers. Within the valleys of many of these rivers, the cultural cores of lasting civilizations and modern nations have developed, and it is in them that most of the peoples of Asia live - and multiply. Nonetheless, not only is most of Asia unattractive to settlement, but much of it is virtually unoccupied, although there are more people more densely concentrated in Asia than in any other continent. (Oshima 1987: 19-20)

The Diversified Rice Economy

Paddy and Rice.

Wickizer and Bennett describe *paddy* as the term commonly applied to (1) the rice plant as it grows in the field, (2) the cut and harvested stalks, (3) the grains that are detached by threshing (rice in the hull) and (4) the flooded field in which the plant grows. *Rice* is the name given to the grain of the rice plant from the time the hard, rather tight-fitting hull surrounding the kernel is removed by milling until it is ultimately consumed as cooked food or until it is otherwise used. However, when referring to a type of agriculture, paddy, rice or paddy rice are often used interchangeably. (Wickizer & Bennett 1941: 9. Barker; Herdt & Rose 1985: 15)

There are several thousand more or less distinct cultivated varieties of rice, more than are known for any other cereal. Details of the different varieties of rice, however, are of minor significance here. It suffices to distinguish between (1) common rice and (2) glutinous rice from the botanical perspective; and (1) upland rice, (2) irrigated lowland rice and (3) swamp lowland rice according to cultural types. (Wickizer & Bennett 1941: 9-10)

Common rice and glutinous rice.

Wickizer and Bennett state that *common rice* comprises the varieties whose kernels can be cooked and still remain separate: sinica (indica and japonica) and javanica.[3] It is the type of rice ordinarily referred to in discussions

[3] Below are selected characteristics of the three subspecies of common rice.

Characteristics	*Indica*	*Japonica*	*Javanica*
Tillering	High	Low	Low
Height	Tall	Medium	Tall
Lodging	Easily	Not easily	Not easily
Photoperiod	Sensitive	Nonsensitive	Nonsensitive
Cool temperature	Sensitive	Tolerant	Tolerant
Shattering	Easily	Not easily	Not easily
Grain type	Long-to-medium	Short and round	Large and bold
Rice texture	Non-sticky	Sticky	Intermediate
Source: Barker; Herdt & Rose 1985: 16.			

of rice production, trade and consumption. It constitutes the great bulk of production and consumption everywhere. *Glutinous rice* is far less important and is mostly produced and consumed in restricted localities especially in China. When boiled it forms a gluey, sticky mass. This stickiness is not objectionable in the preparation of special foods such as pastries and confections, but detracts from the desirability of glutinous rice as a cereal for consumption as such. (Wickizer & Bennett 1941: 10)

Upland rice and lowland rice.

Wickizer and Bennett further point out that *upland (dryland) rice*, whatever its variety, is grown without irrigation or not in surface water, hence known as "hill" or "mountain" rice. Upland methods of culture are mostly primitive; the yields obtained are characteristically small, and the crop uncertain. *Lowland (wetland) rice*, whatever its variety, is grown under irrigation (as *irrigated lowland rice*) or in natural swamps (as *swamp lowland rice*) where there is standing water in the appropriate season, thus known as "irrigated" or "swamp" rice. Commonly, the varieties grown as upland rice are not the same as those grown as lowland rice, for some varieties do relatively well in the drier environment, others relatively well in the moister environment. (Wickizer & Bennett 1941: 10-12. Barker; Herdt & Rose 1985: 15). Table 2.3, summarizing the main types of rice culture by water regime, shows a classification system developed in the late 1970s by scientists at the International Rice Research Institute (IRRI) in collaboration with scientists in national programs throughout Asia.

Very little of the world's and Asia's rice crop is upland rice, very little is glutinous rice, and very little is grown in natural swamps. Hence common rice grown under artificial systems of irrigation is the outstandingly important type of rice in the world economy. No other grain crop, and perhaps no other major crop of any sort, is grown under irrigation to the extent that is characteristic of rice. (Wickizer & Bennett 1941: 11).

Natural Conditions and the Rice Economy

Although varieties differ one from the other, in general, the rice plant must have *high temperatures*, an *abundant supply of water* and *heavy soil* for germina-

tion and growth.

Table 2.3 Classification of Rice Cultures by Water Regime in Asia in the Late 1970s

Water regime	Description of culture	Dominant varietal type	Typical yield mt/ha
1. Upland	Rice is grown on flatland, terraces or slopes without levelling, bunding and impounding standing water in fields.	Medium -to-tall traditional (130-150 cm)	1.0
2.1 Irrigated lowland-wet season	Fields are bunded and puddled. Rice is transplanted. Water is added to the fields from canals, river diversion, pumps, tanks, etc. to supplement rains.	Modern semidwarf -to -medium (100-130 cm)	3.0
2.2 Irrigated lowland-dry season	Similar to wet season, but water must be supplied from storage reservoirs or from pumps. Solar energy levels are normally much higher in wet season.	Modern semidwarf (100-120 cm)	3.5
3.1 Swamp lowland-shallow rainfed	Maximum water depth from tillering to flowering ranges from 0 to 30 cm. Fields are bunded and puddled. Rice is transplanted.	Modern & traditional semidwarf (100-130 cm)	2.0
3.2 Swamp lowland-deep water	Maximum water depth from tillering to flowering ranges from 30 to 100 cm. Rice is either broadcast in dry fields or transplanted in bunded or puddled fields.	Traditional tall (150 cm)	1.5
3.3 Swamp lowland-floating	Maximum water depth from tillering to flowering exceeds 1 m and may run as high as 6 m. Rice seeds are normally broadcast in dry, unbunded fields before the onset of rains.	Floating rice with elongating potential	1.0 or higher

Source: Barker; Herdt & Rose 1985: 15.

High temperature.

Wickizer and Bennett report that for germination, rice seems to require higher temperatures than the other major grains. Minimum temperatures permitting germination are described as ranging between 1° and 5° C. for wheat, rye, barley and oats, and between 8 and 10 for corn and millet. The minimum

temperature for the germination of rice varies with the variety. Those found at the northern limit of culture can germinate at temperatures as low as 10°-13°C., while those grown near the Equator may require 15°-20°C. Too low a temperature not only delays germination, but also seems to interfere with formation of the crown roots. Rice germinates as well under water as in the air, provided that the seed has previously absorbed enough moisture. During its growing season, lowland rice typically requires at least two months, and preferably three, of temperatures of about 20°C. Upland rice thrives at somewhat lower temperatures, and is therefore grown at relatively higher elevations - up to 7,500 feet in the tropics. (Wickizer & Bennett 1941: 18)

The heat requirement of rice is commonly assumed to be the principal factor determining the geographical limits of rice culture, and certainly this is the factor that restricts it to the tropical and subtropical zones, rather than the temperate zones, of the world (Wickizer & Bennett 1941: 17, 19).

Abundant water.

Bray claims that as an advantage, rice does not necessarily require fertilizers, although it does respond well to their use. Water provides nutrients naturally. If there is sufficient water, rice can produce as many as three crops a year without exhausting the fertility of the paddy field. (Bray 1986: 25-26)

Wickizer and Bennett write that the minimum amount of water necessary for lowland rice is very large, though it varies with the soil, the presence of hardpan, and the climate. Under various conditions and evaporation, the requirements are massive (even if not all of the rain falls directly on the fields) and seem to run from 15 to about 35 inches per month - about 15 in part of the tropics, 19 in Thailand, 21 in Bombay and Sind, 25 in Spain, 26 in northern Italy, up to perhaps 36 in Russian Asia where humidity is low. Rainfall as such is important for irrigated lowland rice mainly in so far as it may determine deficiency or excess of water for irrigation. (Wickizer & Bennett 1941: 19). Rainfall must be heavy enough during at least three months of the year so that lakes of water can collect for the rice seedlings to take root and then for the transplanted seedlings to grow to maturity (Oshima 1987: 20). It is easier to collect and distribute water adequate for lowland rice in the moister regions without building vast and expansive irrigation projects. Broadly, not much rice is grown where the annual rainfall is less than 40 inches. But the rice plant does not

require high humidity and thrives in dry heat if there is abundance of irrigation water. (Wickizer & Bennett 1941: 19)

The water requirements of rice are so high that the desert, semi-arid, and sub-humid parts of the tropical and sub-tropical zones, except for such areas that are very easily irrigated, are much less favorable for rice cultivation than the humid parts. The typical form, lowland rice, grows in a flooded field. A consequence of the high water requirement is that rice culture tends to concentrate on level or gently sloping land with soils characteristically heavy in type.[4] Hence the relatively flat lowlands, river basins, and deltas of the world's moist tropical and subtropical regions are best adapted to the rice plant and its cultivation. Such regions are particularly favorable when they are characterized by a seasonal rhythm of rainfall involving concentration of precipitation in the growing season and a relatively dry season at the time when the rice matures. Little rice is grown in tropical forest regions of very heavy rainfall having no dry season at all. Not only is the soil less adaptable and the topography largely unfavorable, but the absence of some dry weather hampers maturing of the rice grain and harvesting. (Wickizer & Bennett 1941: 17-18)

Heavy soil.

Wickizer and Bennett indicate that rice apparently makes no special demands to soil, but the circumstances of lowland rice cultivation favor concentration of production on soils of heavy type (Wickizer & Bennett 1941: 21). Rice thrives on some decidedly alkaline soils, which are improved for other crops by rice culture, as the water removes some of the alkali. Some varieties endure a very considerable concentration of common salt. (Copeland 1924: 50).

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[4] Soils are commonly classified according to the percentage of clay which they contain: sandy soils (less than 5 % clay), sandy loams (5-10 %), loams (10-20 %), clayey loams (20-30 %), clay soils (30-40 %), and heavy clay soils (over 40 %). The tabulation below shows for several tropical crops the soils found from experience to be most suitable:

Cotton - light sandy loam	Tobacco - light sandy loam
Maize - sandy loam	Sisal hemp - sandy loam
Tapioca - light loam	Sugar cane - fairly heavy loam
Rubber - light clay loam	Tea - medium clay loam
Coffee - medium clay loam	Cacao - heavy clay loam
Coconuts - clay loam	Oil palms - clay loam
Rice - heavy clay	

(Tempany & Mann 1930: 57, 65.)

In such localities salt-tolerant varieties of rice are of prime importance (Wickizer & Bennett 1941: 22).

Bray stresses, however, that soil type is much less important than the water supply (Bray 1986: 28). "Whether the land be good or poor, if the water is clear then the rice will be good", says the sixth century Chinese agricultural treatise "Qi Min Yao Shu". Grist also claims that water is the most important factor in rice-growing, the water-soil relationship largely determining the ability of the soil to develop its full potentiality for rice production. (Grist 1975: 20). Hence the importance of water conservancy.

Natural Disasters in Rice Growing

(1) *Drought* is by far the most serious threat (Barker; Herdt & Rose 1985: 23). (2) *Excessive rainfall*, however, is disadvantageous too; if it comes at harvest time, the crop may be damaged and the cost of harvesting increased without compensatory improvement in quality. The danger of rain damage during harvest is the chief reason why varieties giving relatively low yields of poor quality, but maturing early, are cultivated in some localities. (Wickizer & Bennett 1941: 19). Where the rainfall is much heavier, as in parts of Sumatra and parts of Africa and Latin America, paddy rice growing is not feasible (Oshima 1987: 20). (3) *Unseasonable or excessive floods are destructive.* (4) *Deficiency of light* is harmful. Rice wants all of the illumination that it can get naturally. Generally, *cloudy weather* is bad for it. *Weeds* which rival or exceed it in height are especially injurious. And in the *shade of trees* practically no crop is produced. (Copeland 1924: 16, 44. Barker; Herdt & Rose 1985: 23). No amount of manure can make up for the deficiency of light in such cases. (Tempany & Mann 1930: 19). (5) In the typhoon belt, *storms* also cause loss (Wickizer & Bennett 1941: 20. Barker; Herdt & Rose 1985: 24). (6) *Night frosts*, *cold winds* and *cold rains* are injurious to growing rice (Wickizer & Bennett 1941: 18).

The Rice-Dependence of Agriculture

A rice-based agriculture in monsoon Asia.

A rice-based agriculture exists, not in Africa, North and Central America, South America, Europe and Oceania or the rest of Asia, but in monsoon Asia, as

the much higher percentage of rice area in the total crop-producing area in monsoon Asia shown in Table 2.4 indicates. There are two major reasons.

Table 2.4 Area Percentage and Yield of Rice, Wheat and Coarse Grains * in Various Parts of the World in 1992

	Percentage of harvested area in total crop-producing area #			Yield Kg/hectare		
	Rice	Wheat	Coarse grains	Rice	Wheat	Coarse grains
World	10.3	15.3	22.9	3557	2550	2625
Monsoon Asia ^	33.9	16.4	19.8	3215	2044	1843
Rest of Asia	1.0	31.4	17.8	2951	1794	2390
Africa	4.0	4.4	35.5	1970	1656	872
North & Central America	0.7	14.7	21.1	5319@	2510	5671
South America	5.6	6.3	19.2	2597	2109	2462
Europe	0.3	18.5	28.1	5849	4543	3582
Oceania	0.2	15.8	9.3	7879	1796	2041

Notes: * Coarse grains include barley, maize, rye, oats, millet and sorghum.
Total crop-producing area refers to area of arable land and land under permanent crops. *Arable land* is land under temporary crops (double-cropped areas are counted only once), temporary meadows for mowing or pasture, land under market and kitchen gardens (including cultivation under glass) and land temporarily fallow (less than five years) (the abandoned land resulting from shifting cultivation is not included; the data are not meant to indicate the amount of land that is potentially cultivable). *Land under permanent crops* is land cultivated with crops that occupy the land for long periods and need not be replanted after each harvest, such as cocoa, coffee and rubber; this category includes land under shrubs, fruit trees, nut trees and vines, but excludes land under trees grown for wood or timber.
@ In 1979-81, 1991 and 1993, however, the yields of rice are all higher than those of coarse grains in North and Central America.
^ Total crop-producing area of Hong Kong and Singapore and the rice yield of Hong Kong are also counted into the data for monsoon Asia.
Source: FAO-YP 1993: vii, viii, xiv, 3, 6-7, 9-11, 68-74.

First, no other cereal crop is suited to the pattern of rainfall and humidity of monsoon Asia (Oshima 1987: 18). Wickizer and Bennett claim that few agricultural alternatives present themselves. Neither wheat, barley, rye, nor oats

will thrive as summer crops under such conditions of moisture and heat. Millets, grain sorghums and maize do better, but can equal rice only in areas of lower summer rainfall. None of these grains can be stored as successfully as rice in a hot and moist climate. None can produce as much food per unit of land in the places where lowland rice thrives (this statement by Wickizer and Bennett in 1941 is supported even today by Table 2.4 which shows that the yield of rice is generally higher than that of wheat and coarse grains not only in monsoon Asia but also in the rest of the world). Even if such crops as sugar cane, cassava and yautia (a tropical tuber allied to taro) produced more food per acre, they would require a longer growing season and therefore be suitable only in certain places, or they would be less adaptable in the diet or probably more difficult to store between harvests. (Wickizer & Bennett 1941: 26-27. Copeland 1924: 338-40)

Second, there is not much difference between rice and other cereals in terms of nutrition. Barker, Herdt and Rose report that Asians who eat rice-based diets will consume sufficient protein if their caloric levels are adequate (Barker; Herdt & Rose 1985: 169-170). Table 2.5 shows the nutritional composition of rice and other cereals consumed in Asia, along with egg as a reference for protein quality. Most cereals have about the same caloric-supplying value. The protein content of rice is somewhat lower than that of wheat and maize, but offsetting that is its higher "biological value", defined by Whyte as "the proportion of absorbed nitrogen that is retained in the body for maintenance and growth" (Whyte 1974: 96). When both factors are considered, there is little difference in the protein per 100 grams of cereal.

This is also the view of Payne, who says that the crude protein in cereal diets cannot be compared directly with the requirement scale, which is expressed in terms of completely utilized protein, but must first be corrected for quality. His review of studies with rats, which were fed diets based on a number of Asian staples, shows that with the exception of cassava, sago and plantain, all provide sufficient utilizable protein to meet requirements after the age of one year. Several years of careful and exacting work by Swaminathan and his associates at Mysore shows that very simple diets based upon cereals with minimal additions of pulses and vegetables have current NDpCAL (net digestible dietary protein expressed in calories) values measured with eight to 12 year old children which are in excellent general agreement with those in the rat assays. (Payne 1971: 23-24)

Table 2.5 Major Nutrients in Rice and Other Selected Foods				
	Calories per 100 gm	Percent protein	Biological value of protein	Percent fat
Egg	173	13.3	100	13.3
Rice, milled	345	6.8	67	0.5
Wheat flour	348	11.0	52	0.9
Maize	342	11.1	56	3.6
Sweet potato	120	1.2	n.a.	0.3
Sources: Whyte 1974. Perera; Fernando; De Mel & Poleman 1973.				

Compared with rice, the yields of other cereals are lower, less suitable to the climate and are not superior in nutrition. Therefore monsoon Asians had no choice but to evolve paddy rice agriculture over many centuries (Oshima 1987: 18). In classic Chinese, *rice culture is synonymous with agriculture*, and in many Asian languages rice and food are synonymous. This would suggest that rice originated long before recorded history. (Wickizer & Bennett 1941: 14). Asian rice is believed to have evolved from an annual progenitor in a broad belt extending from the Gangetic plain below the foothills of the Himalayas, across upper Myanmar, northern Thailand, to North Vietnam and South China. Domestication could have occurred independently and concurrently at many sites within this area. (Barker; Herdt & Rose 1985: 14). Numerous archaeological investigations throughout Asia have established that rice was domesticated as early as the fifth millennium BC (Lu & Chang 1980).

Within the zones of monsoon Asia where temperatures are sufficiently high and rainfall abundant, the rice acreage lies mostly along the valley plains of great rivers and in deltas and other costal plains. Here the construction of level, floodable and fertile rice fields is simplest and least costly for reasons both of topography and soil. (Wickizer & Bennett 1941: 24)

Areas not for rice planting.

Rice culture is, however, not spread throughout all parts of any of the countries of monsoon Asia. Because of the need for an annual rainfall of more than 40 inches, there is not much rice culture at land elevations exceeding 3,000 feet, or in areas where average January temperatures fall below the freezing point.

There are no extensive and heavy concentrations of rice production in lands lying directly upon and within five degrees north and south of the Equator, a region including most of Sumatra, Malaya, Borneo, the Celebes, and the northwestern part of the great island of New Guinea. Here the annual rainfall is very heavy and distributed throughout the year so that no season is dry. Dense tropical forest, difficult to clear, is the typical natural vegetation, and the topography even at the lower elevations is largely very uneven and steeply sloping. Relatively little rice is grown also in large stretches of western China, and parts of Vietnam, Thailand, and Myanmar where the rainfall and temperature conditions might seem to satisfy the requirements of the rice plant. The relatively high elevations and the irregular terrain are probably important factors in reducing the importance of rice among the crops produced. (Wickizer & Bennett 1941: 24-25)

Culture of other crops.

Other crops are also produced in monsoon Asia where and when natural conditions are suitable for them but not for rice. According to Wickizer and Bennett, in the drier and/or cooler parts of China (the north and west) and India (the central strip and the northwest), the principal grain crops tend to be either millets and sorghums or wheat, less commonly maize or barley, and rarely oats. These are crops with much lower water requirements than lowland rice, and most of them thrive with less heat. Rye is nowhere an important grain crop in monsoon Asia. (Wickizer & Bennett 1941: 24)

Various cropping practices for rice.

They are determined by the availability of water and heat. Cropping systems based on rice are the most common form of agriculture in Asia, and a single crop of rice per year may be the most widely practiced land use pattern in Asia (World Bank 1976). There may be enough water in some places to produce two or three successive rice crops under irrigation [e.g., in the tropics, where water for irrigation is available in adequate amounts, two crops of rice are grown (Barker; Herdt & Rose 1985: 24)]. On the other hand, especially in the flood plains of rivers, the prevalence and duration of floods may preclude the cultivation of more than one crop in a year. Hence some of the land in a given region may be double-cropped to rice and some single-cropped. (Wickizer & Bennett 1941: 20)

Barker, Herdt with Rose state that in the temperate areas, cold weather

limits rice production to one crop per year. In Korea and Japan some rice paddies are diversified to barley in the winter months. In the warmer areas, other crops are planted after or before rice on some fraction of land. Except for the high-latitude countries, the availability of adequate water is the main factor determining when rice is planted. Because of the pronounced monsoon and dry season, even the two-crop locations usually produce a second crop of rice only where irrigation is available. In most places, the cultivation season begins in May or June with the onset of the main monsoon showers. The first crop is sowed in parts of Central Thailand, Lower Myanmar, Vietnam, Bangladesh, and Sri Lanka, or transplanted in most other areas during June, July and August. If it is a traditional variety, four or five months may be needed for it to mature, while some modern varieties mature in three months. The second modern rice crop is usually planted in November, December, or January, maturing before the hottest and driest months of April and May. (Barker; Herdt & Rose 1985: 24)

It is common to find a wide range of upland crops planted in rotation with rice. This normally occurs where rainfall is not adequate for a second rice crop or where a third crop can be grown after the second rice harvest. Maize is common in some places; root crops such as sweet potato, and various legumes like green gram, cowpeas and soybeans are common in others. However, in general, the area rice farmers use to plant crops after rice is much smaller than the area planted with the main rice crop. (Barker; Herdt & Rose 1985: 24)

IV. The Prewar "Vicious Circle" of Poverty in Monsoon Asia

The purpose of dealing with this topic is to try to show that free market forces alone could not overcome the "vicious circle" of poverty and realize sustainable rural development before WWII, and a number of underlying conditions still exist in various parts of monsoon Asia nowadays. It is analyzed as follows. Under the natural monsoon conditions, there were (1) highly labor-intensive rice culture leading to labor force shortage in the peak seasons, population densities, and fragmented small farms; (2) little employment in the slack seasons; (3) unfeasibility of capitalistic large-scale farming, and (4) feudal

landlord ownership strengthened the poverty. While (1), (2) and (3) are mainly traditional productive and technological conditions, (4) is an institutional one.

Labor-Intensive Production

Highly labor-intensive nature of paddy rice culture.

In the prewar period, very little machinery was used in monsoon Asian rice-producing countries. Tractor cultivation was attempted, but did not meet with much success in the places where it was tried. Tools and implements were generally of the simplest type. Under such *traditional technologies*, rice growing in the Orient was one of the most labor-intensive types of agriculture known. (Wickizer & Bennett 1941: 50)

Bray argues that the nature of the inputs required to raise output in wet-rice cultivation in monsoon Asia was such that capital played a subordinate role to labor in developing the forces of production. The historical material shows clearly how over time Asian systems of wet-rice cultivation became progressively more intensive in their use of labor, while relying on relatively low levels of capital investment. In large part this is because the general trend in technological development has been toward the concentration of resources on raising the productivity of land. (Bray 1986: 149). Ishikawa and Taylor showed that broadly speaking yields of wet rice correlate positively with labor inputs. (Ishikawa 1981: 2-3, 22. Taylor 1981: 89)

Oshima indicates that labor requirements per hectare of paddy rice grown varied from country to country in monsoon Asia, depending mainly on the extent to which work animals were used, the extent of irrigation and of available transportation, and so on. Labor required per hectare in the prewar years was about 50 man-days in the philippines, 80 in Thailand and Bombay, 100 in West Bengal, and 150 in Madras, China and Japan. The lower figures for Southeast Asia (except Java) reflected the more extensive use of work animals and the limited extent of irrigation and transportation, though even these figures were considerably higher than those for the wheat culture of the US as early as 1800. For the US in 1900, before mechanization, only five man-days for wheat and 10 days for corn were needed. (Oshima 1971: 63-97. Oshima 1987: 24)

Oshima holds that the major reasons for the heavy labor requirements

could be seen throughout the three stages of rice cultivation (Oshima 1987: 24).

The first stage was planting. There was the need (in order to get high yields) to prepare seedling beds and to transplant seedlings instead of broadcasting or drilling seeds as in wheat. Typically, in Asian paddy fields, when the first rains came, the seedling beds were plowed and harrowed several times. The soil of the seed bed was hoed, plowed, or trampled into fine, soft mud before sowing. In most countries, the seeds were soaked in water and then sowed after the water was drained. The water was replaced in the paddy after the seeds had germinated. After about a month, the young rice plants were pulled out, tied in bundles, topped, and taken to the paddies to be planted in the main fields. If the monsoons came too late, the seedlings became too old and might have had to be replaced with new ones. For example, in Japan, in 1954, before mechanization made headway, plowing per hectare took 10 hours, preparing seedling beds and transplanting 17 hours, weeding 15 hours, reaping 18 hours, threshing 10 hours, and irrigating 11 hours; transplanting and reaping/threshing were concentrated in a brief period. (Oshima 1987: 24)

The second stage was harvesting. The rice harvest usually began three - six months after transplanting, depending upon whether the varieties planted matured early or late (Wickizer & Bennett 1941: 53). The methods of using a small knife or at best a sickle was time-consuming. Reaping with a larger cradle or scythe as in the Western wheat culture of the 19th century was not feasible in the wet or moist paddy soil: moisture could spoil the grain as it fell to the ground after scything. Moreover, with the long-stalk indica rice used extensively in Southeast Asia, lodging was a common problem, leading to uneven maturing so that the heads had to be cut singly with small knives to avoid heavy losses due to shattering, lodging and uneven maturing. Unlike other grains, the mature rice grain readily shattered. Thus, it is reported that before the war the Javanese peasant refused, despite strong urgings by the Dutch, to use the sickle in place of his small knife. (Oshima 1987: 24-25). Due to labor shortage, outside labor was imported in some areas especially for the harvest and the helpers commonly received compensation in the form of a certain portion of each day's harvest. For example, in Lower Myanmar, some 200,000-300,000 Indians came for the harvest each year, many remained and worked in the mills, and finally returned, mostly to the famine areas of southern India. (Wickizer & Bennett 1941: 53)

The third stage was threshing. This was usually done by hand with the aid of some simple device. Bundles of harvested ears and attached stalks were carted to the threshing floor. In some areas bullocks, carabaos or oxen tread out the grain; in other places humans performed the same operations. In still other areas the grains were beaten with flails (long sticks - usually bamboo - at the end of which were attached stout reeds which swung freely as the operator alternately raised his pole and then brought it down hard on the threshing floor). The tramped or beaten material was winnowed by allowing it to fall gently from a platform while the wind carried away the chaff, dust, short pieces of straw, and the lighter kernels. Sometimes threshing consisted merely of pounding the rice heads on a log. (Wickizer & Bennett 1941: 50, 54-55)

Tight work schedule.

Oshima says that for various operations during these stages, the monsoon rains which came and went at only certain periods of the year enforced a rigid work schedule. The early rains of the monsoon season were insufficient to soften the clay soils, hardened by the dry months. The brick-hard earth could not be plowed even with buffalo power until the heavier rains began to flood the paddies. This called for timely and concentrated plowing, in addition to long hours of work with seed beds, so that transplantation would not be delayed beyond the optimal stage of seedling growth. Harvesting also must be carried out at the appropriate time; otherwise large losses would be incurred as over-ripe grain was more liable to shatter. (Oshima 1987: 26)

Labor force shortage in peak seasons and increasing population densities.

Oshima argues that the heavy concentration of labor required during the few months of the monsoon and the tight work schedule meant that labor required for optimal yields typically exceeded by a wide margin the available adult male working population. (In areas where labor was available, both labor inputs and yields were highest, as in China, Japan and Java; they were lowest in countries like Thailand where labor was not available for intensive cultivation.) This called for the use of young, old, and female workers. *These heavy labor requirements must have contributed to the rapid rise of population* in the major, more temperate Asian regions such as China, India and Japan, as the technology of monsoon paddy culture became increasingly labor-intensive in the centuries of the second millennium, with deeper and more careful plowing, more intensive

transplanting, multiple cropping and more intensive reaping. Two rice crops on the same land during the year meant that with the same labor force much more could be produced and more people could be fed. But the increased hands could be put to more intensive cultivation to get higher yields per crop, so that in the latter case population and food supply went up more or less simultaneously. None of these operations (except for plowing) could use work animals, so that the demand for hands rose. (Oshima 1987: 26)

Fragmented small farms.

Oshima points out that high population densities in the rural areas with limited availability of new land and the labor intensity of agricultural operations meant that farms were small (Oshima 1987: 25). Moreover, the small farms were fragmented (which Oshima does not note). In Japan, many farmers had their pieces of farmland scattered over the village (Nishimura & Sasaki 1993: 74-75). In China, the average size of most farms was about 1 ha. Such a small farm was composed of many irregular (so-called fish-scale shaped) parcels smaller than 0.067 ha especially in the mountain and hill areas. (Huang, Xi-Yuan 1986: 371). In India it was common to find a holding of 4-5 ha scattered into 20-30 parcels (Menon 1956: 597). In Uttar Pradesh of India, a village with an area of 60.705 ha contained more than 1,000 plots, on average 0.06 ha each, and a cultivator with 0.8094 ha of paddy land possessed more than 150 plots, on average 0.005 ha (Sahi 1964). The same situation existed in Malaya, Pakistan, Philippines, Sri Lanka (Ceylon), Taiwan as well as other rice-based economies of monsoon Asia (Wilson 1958: 82. Ahmed & Timmons 1971: 59, 63. COP 1965: 205. Michael 1953: 40. Vander Meer & Vander Meer 1968: 147). The major specific causes of fragmentation of small farms and its disadvantages and advantages perceived in monsoon Asia may be summarized as follows.

(1) *Supply-side causes of fragmentation.*

* *Reclamation.* When a new area was reclaimed, only the best pieces of land were exploited and the intervening areas left unoccupied. Subsequently, when pressure on land increased, the poorer soils were also taken over but usually by others than the pioneers. The original cultivator or his successor in such a case found new cultivators in occupation of areas in between his parcels of land. (Zaheer 1975: 87)

* *Inheritance.* Limited land, increasing population, and little off-farm

employment made peasants dependent on tilling land. This led to the property right to freely subdivide the existing land (rather than primogeniture). Fair division of the parents' farm among heirs concerning land productivity (fertility, acreage, access to water, distance to village, flatness, etc.) resulted in fragmentation. Inheritance in this way generation after generation contributed to more and more fragmented farms. (Binns 1950: 10-12, 14)

* *Division.* When a joint large family disintegrated, the sub-families tended to insist on fair and equitable division of the assets of the family, thus parcelling out land with various levels of productivity. (Zaheer 1975: 87)

* *Acquisition.* The existence of property rights to freely transfer or add to existing agricultural holdings also caused fragmentation. Marriage could bring dowry land (Vander Meer 1982: 1). An owner-peasant, due to limited financial resources, might not be able to afford to buy large estates at once and have to purchase cheap land piece after piece. A peasant who owned land but also rented land might have had to surrender his owned land to a feudal landlord if he could not hand in rent. A moneylender could acquire the land of a debtor if he could not repay the debt. The newly gained parcels were generally located in different places. (Binns 1950: 11-12)

* *Lease.* Some feudal landlords (especially warlords) could seize large areas of land by forced occupation or cheap purchase, but they then had to rent it out in small pieces (Huang, Xi-Yuan 1986: 171) since large-scale farming was not feasible (as analyzed below). There also were owners who were loath to lease land and would do so only in small parcels when absolutely necessarily (Fals-Borda 1955: 160-161). Owners of land generally had a right to resume land and also to re-let land to others. Thus, a cultivator might be divested of the parcel he rented earlier and the same parcel might be leased to another tenant. Consequently a tenant could possess parcels in different places. (Zaheer 1975: 87). A tenant also might not have enough family labor force to justify renting more land. After his children became part of the labor force, he could rent more, but only parcels in different places, since those contiguous to his were already rented out to others.

* *Sale.* Due to debt or other reasons, some owner-peasants might be compelled to sell parcels of land. These were usually choice areas which could readily command a good price with the minimum area being parted. (Zaheer 1975: 87)

* *Use.* Under some communal or feudal serf-holder land systems, members or villeins were given fragmented subsistence parcels on the basis of equality concerning fertility, acreage, access to water, distance, etc. (Binns 1950: 12)

* *Construction.* Construction of infrastructure like roads, canals, railways, and other rights-of-way might separate land (Wilson 1958: 84-85).

* *Incomplete irrigation* also could contribute to land fragmentation. For example, in Pul Eliya Village in Sri Lanka (Ceylon), the channels extended downslope from the water tanks, and the fields lay on one or both sides of the channels so that they could receive water. In some years, however, the water was insufficient to reach the lower fields. To insure a harvest, therefore, farmers had to have both higher and lower fields. To hold land only in the lowest areas would have been extremely hazardous. (Leach 1961: 171)

(2) *Demand-side causes of fragmentation.*

* *Risk diversification.* To diversify risk, peasants needed varieties of soil and different places to avoid being dependent on one parcel or one product (Binns 1950: 22, 31. Heston & Kumar 1983: 200).

* *Natural needs.* One of the factors promoting excessive fragmentation was the wide variation in the fertility or productivity of land. Farmers needed land suitable for seed nurseries and land for growing of rice. There were seasonal reasons for working both an upland parcel and a parcel on river banks and islands at different times of the year. (Binns 1950: 22, 31). Many farms in mountain regions consisted of three separate estates - in the plains, in the middle levels and on the high levels (Swi-Gov 1950: 90).

(3) *Disadvantages of fragmentation.*

* *Diseconomies of scale* were bound to apply: below the optimum size, the smaller the size the higher the cost of raising crops on it and lower the income (Zaheer 1975: 87-88).

* *Waste of time and energy* was typical in transporting material inputs to the parcels and in bringing the output to the threshing ground. Workers on the land had to make long and unnecessary trips from one parcel to another for various agricultural operations. (Zaheer 1975: 87-88)

* *Sub-optimization of land use.* If parcels were widely separated or some were distant from the farmstead, the demands on available time and energy might force the farmer to cultivate a lower labor-demanding crop, especially on more

distant fields, or devote less time to such work as weeding and fertilizing. Under such circumstances, the land was not optimally utilized and profits were less than their full potential. (Chisholm 1962: 59)

* *Prevention of use of machinery and animals.* The use of machinery would be impracticable on such small fields even if it were available. Where animals were plentiful, their use for plowing was often precluded because of small parcel size. In the more densely populated areas of monsoon Asia, land was not available for growing both food and feed; hence beasts of burden tend to be relatively scarce. Most of the work in connection with the production of rice and its preparation for consumption had to be done by people. (Wickizer & Bennett 1941: 50-51)

* *Obstacles to land improvement.* Making physical improvements was generally more costly on a scattered farm than on a single-parcel farm. Longer fences to control stray livestock movements were needed per unit of area enclosed (Smith 1959: 149), whose higher cost prevented farmers from building fences in monsoon Asia (Buck 1937: 185). Individual initiative in the construction of irrigation facilities was discouraged by the high unit costs of the area served. (Buck 1937: 185). Soil conservation on the tiny parcels was also difficult. (Zaheer 1975: 87-88)

* *Waste of land* was typical because of the plethora of demarcation-boundaries. (Zaheer 1975: 87-88)

* *High cost of supervision.* In fragmented farms, the cost of inspection of crops was high and even then uniform supervision became almost impossible due to the dispersed locations of the parcels. In areas where crops were subject to the depredations of animals and birds, keeping them free from this menace became very difficult. (Zaheer 1975: 87-88) As the harvest period approached and crops required protection from insects or thieves, more field watchers were needed (Fals-Borda 1955: 156).

* *Difficult coordination.* Devising a practical drainage system became difficult since any such scheme had to be coordinated with numerous other land-holders. (Zaheer 1975: 87-88). Individual farm management practices were hard to improve. The farmer who used insecticides on his several parcels could be discouraged if even a few of his many field neighbors failed to control insects on their land, so that his insecticide application was ineffective. (Fals-Borda 1955:

152). In general, the smaller the parcels worked by a farmer, the more he was bound by and locked into the cropping pattern and time schedules of the other farmers in his locality, and the more he was hampered in his ability to change his ways in response to changing technological and market conditions. (Floyd 1964: 101)

* *Neighbor problems.* That the cultivator of a fragmented farm had more field neighbors naturally increased opportunities for problems between neighbors (Smith 1959: 149). It was difficult to keep stray animals from disturbing the crops of other farmers (Buck 1937: 185). Access of fields to roads or to irrigation water sources was complicated by the presence of intervening landowners (Fals-Borda 1955: 152). Construction of irrigation facilities also was extremely difficult because channels had to extend long distances past neighbors' fields (Buck 1937: 185).

(4) *Advantages of fragmentation.*

* *Diversification.* Different parcels located in different soils or micro-climates could support a greater diversity of crops (Lehrer 1964: 31), which could provide the farmer with both greater income and security of income (Fals-Borda 1955: 158-159). Working parcels in several locations also spread the risks of natural disasters (Abler; Adams & Gould 1971: 482-483. Lehrer 1964: 31).

* *More exchanges* of ideas could occur as a farmer met other farmers adjacent to his many parcels of land (Lehrer 1964: 31).

* *It was more socially desirable*, with little off-farm employment and insufficient rural infrastructure especially irrigation, to provide peasants with relatively equitable access to farmland and facilities than to concentrate them on a few farmers.

* *Development of intensive farming techniques* was promoted in monsoon Asia due to increasing population pressure and decreasing field size (Huang, Xi-Yuan 1986: 20-22), which will be analyzed later on.

In comparison with the disadvantages, the advantages were minor. All of these reflected backward economic, technological and social conditions. In other words, farmers were forced to accept the fragmented small farms because they had no other choices. In fact, *wet-rice farmers in monsoon Asia generally preferred having all their land in one contiguous parcel* (Vander Meer 1982: 93).

In sum, the wet monsoons imposed on Asians a labor-intensive form of

agriculture which over the centuries created greater and greater demand for labor during the peak seasons. The increasing population densities meant decreasing size and fragmentation of farms, as crop land began to be scarce and diminishing returns set in. As a result, during the first half of the 20th century, agricultural productivity grew slowly. (Oshima 1987: 26-27, 45)

Table 2.6 Agricultural Densities and Average Farm Sizes in Various Parts of the World during 1960-70 @

Region/ Continent	Agricultural population /agricultural land *	Agricultural population /arable land (persons /hectare)	Area of agricultural holdings # (million hectares)	Number of agricultural holdings (million)	Average area of agricultural holdings (hectare /holding)
World	0.4	1.4	2387.6	138.5	17.2
Monsoon Asia	1.3	3.1	201.2	92.3	2.2
Africa	0.3	1.4	227.8	7.3	31.0
North & Central America	0.1	0.2	710.0	7.0	102.0
South America	0.1	1.0	544.2	6.8	80.0
Europe	0.2	0.4	221.3	24.7	9.0
Oceania	0.01	0.1	483.1	0.4	1316.1

Notes: @ "FAO Production Yearbook" of the 1980s and 90s no longer provides data on area and number of agricultural holdings.
* Agricultural land = Arable land + Land under permanent crops + Permanent meadows and pastures. Definitions see Table 2.4.
# Agricultural holding refers to all land that is used wholly or partly for agricultural production and is operated by one person - the holder - alone or with the assistance of others, without regard to title, size or location (livestock kept for agricultural purposes without agricultural land is also considered as constituting a holding).
Source: FAO-PY 1972, based on 1960 and 1970 agricultural censuses of each country.

In the postwar period, although this highly labor-intensive culture has been replaced by agricultural mechanization in some economies like Japan and Taiwan, it is still dominant in the others. Agricultural population densities, and fragmented small farms prevail. In Japan and China, fragmentation is more serious (see Chapters 4 and 5 respectively). Table 2.6 shows that during 1960-70, among all

parts of the world, the area of agricultural holdings in monsoon Asia was the smallest, reflecting the scarcity of land; the number of holdings the largest, implying higher agricultural population densities; as a result, the average farm size was the smallest.

If those parts not under the monsoon climate (western Pakistan, western and most of northern China, about half of India and parts of Indonesia) are excluded, the monsoon Asian densities will rise to nearly 10 persons per hectare of agricultural land, or about 30 times that of Africa, 40 times that of Europe and over 100 times that of the Americas (in 1975). In those parts under the monsoon climate, if the less labor-intensive plantation crop areas are not taken into account, i.e., if agricultural population is divided by arable land (with temporary crops) only, densities will rise further because most of the population is concentrated in the valleys and basins of the great and small rivers where paddy rice is grown. (Oshima 1987: 19-21)

Seasonal Employment

The seasonality of the monsoon limited the use of the tiny holdings to only about half of the year, unless irrigation brought water during the dry seasons. Therefore, according to Oshima, the majority of Asian peasants traditionally undertook non-crop agricultural work (animal husbandry, fishery, hunting and forestry) or off-farm activities (such as handicraft production) when the dry months came, and some also after the busy months of planting and before harvesting, as crops growing in water did not require as much care as those crops grown in dry fields, such as wheat (Oshima 1987: 17, 25). However, neither the non-crop agricultural work nor off-farm activities could provide sufficient employment for them.

In Western countries, the sparsely settled, low-density rural areas, together with the evenness of rainfall throughout the year, permitted farmers to complement their agricultural production with livestock raising as land (when wheat or other cereals were not being grown) was sufficient to allow growing of crops to feed livestock during the winter months. Beginning with enclosures for sheep raising, and then livestock raising for food, increasing amounts of land were put into the growing of livestock feed (grasses, turnips and clover). The growing of

crops for winter feeding of livestock enabled the English farmers to combine farming with animal husbandry - a combination which generated economies of scale as labor requirements per hectare diminished. The rise of capitalistic agriculture, especially in England from the 18th century, hastened the combination of agriculture with animal husbandry. Agriculture also separated from handicraft which promoted the growth of industries to provide sufficient jobs for farmers leaving agriculture. In contrast, such combination and separation did not occur in monsoon Asia. (Oshima 1987: 25, 36)

Agriculture's combination with animal husbandry was impossible.

Oshima claims that the high population densities and the dry season precluded the development of animal husbandry as a seasonal complement to crop culture despite the year-round warm weather. As mentioned above, in the more densely populated areas, land was not available for growing both food and feed; hence beasts of burden tend to be relatively scarce. Thus, the great population densities demanded that all arable land be devoted to the growing of food for human beings. Whatever feed was available had to be fed to the oxen and buffaloes used in plowing. In places as densely settled as Java, the amount of available feed for buffaloes was insufficient, and most plowing had to be done by hand. And everywhere the average Asian had to pull his own cart or carry produce on his back before the advent of bicycles, railways and other modern means of transport. As one foreign observer in Japan noted in the 1880s, when the Meiji government[5] ordered the raising of a horse in each farm, the farmers complied at the sacrifice of food for the family. (Oshima 1987: 25, 36-37). Therefore, animal husbandry could not provide sufficient jobs to peasants in the slack seasons.

Non-separation and the lack of handicraft development.

As Oshima argues, traditional handicraft did not develop into modern industries as in the West, since it did not separate from agriculture. Further, neither urban factories nor rural handicraft could offer enough work to peasants in the dry half of the year.

In terms of the demand for labor, due to the high cost and low productivi-

[5] The Meiji Reformation (Restoration) of Japan started in 1868 and the Meiji era lasted until 1912. (CED 1980: 799. NECD 1985: 716)

ty of machines and other overheads of the steam-powered machines of the First Industrial Revolution of the 18th/19th century, the factories had to be operated year-round to be profitable, unlike hand spindles and looms (Oshima 1987: 40).

In terms of the supply of labor, however, as long as the basic traditional village structure remained largely intact, the vast peasant population was needed for the peak seasons of agricultural work, and traditional transportation was inadequate for commuting to work in the cities during the seasonal slack. Therefore, the *unlimited supply of labor* was only in the dry half year. For example, the Dutch used to interpret the backward-sloping supply curve of Indonesian workers as indolence, but it was largely a reflection of workers going back to the villages during the busy seasons. (Oshima 1987: 38, 40)

To attract the labor for year-round work, the factories would have had not only to pay wages equal to those for cloth making but also to make up the cost of food production. Until the factories became much more productive, with more and better machines - such as the electricity/gas-driven ones of the Second Industrial Revolution in the early decades of the 20th century - and greater economies of scale, the *wage gap* offered was not sufficiently attractive to tempt village laborers to abandon the farms.[6] Therefore, despite the lower productivity of hand-operated spindles and looms, the opportunity-cost of working on them in the village was low. There was no choice for the peasants but to continue to carry on with traditional off-farm work, principally hand spinning and weaving. (Oshima 1987: 38-40). Until the spurt of rapid growth beginning in the mid-1950s, the emigration of the labor force to urban occupations had not been large enough to significantly reduce the absolute size of the labor population in agriculture (Hayami & Yamada 1991: 4).

Such a slow release of workers from agriculture impeded industrialization. For example, Japan emerged from feudalism in the 1880s. The first textile factories in early Meiji period had to turn to the daughters of the unemployed samurai who found no place for their traditional warrior skills as their labor force. But due to the low agricultural productivity, not enough food could be pared for

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[6] The migration of Chinese to Malaysia was for full-time work in the tin mines, and that of Indians was for full-time work on the rubber plantations of Malaysia and tea plantations in Sri Lanka - all of which paid more that part-time work in the rice paddies of India and China. (Oshima 1987: 40)

industrial workers, and so the pace of industrialization was sluggish. Around 1900, the acceleration of Japan's industrialization was possible only with the import of large amounts of rice from its colonies *Taiwan* and *Korea* which it occupied in 18951945 and 1910-45 respectively. There was little or no industrial growth in the rest of Asia. Thus, the growth of modern industry was hampered and Asia fell behind in industrial production. (Oshima 1987: 38-40, 44-45, 106. Oshima 1993: 5)

But although handicraft was not separated from agriculture, with the importation of cheaper products made by Western machines in the last few centuries, the peasants lost their urban markets, and their production of handicraft was confined to village needs (Oshima 1987: 25). Therefore, village handicraft provided much less employment than before during the slack seasons.

Oshima finds that even today, in most monsoon Asian economies, this separation has not yet occurred, except in plantation crops such as rubber and tea which require labor all year around. The growing rural population found less to do during the dry months as the larger population sought more work. Much of the available work was marginal, intermittent, irregular, of short duration, and of low intensity, and with so much labor competing for so little work in the dry months, remuneration was low. In Indonesia, per capita incomes are lower in the rural areas of Java and Bali (where densities are much higher) than in Sumatra, Kalimantan and Sulawesi; similarly, in the Philippines incomes are higher in Mindanao, which is less densely settled, than in most parts of the country. (Oshima 1987: 25, 27). Therefore, in monsoon Asia, although at the peak seasons all the available labor was needed and actively at work, there were serious underemployment, unemployment and *disguised unemployment* in the slack time, which gravely contributed to the poverty.

The Obstacles to Large-Scale Farming

In Western Europe, the favorable climate - more even rainfall - and plenty of land made it easy to convert small strip farms into large capitalistic farms even with *simple* technologies such as multiple-horse-driven iron plows in the 16th century. Technological progress, especially in England after the 15th/16th century, displaced labor-intensive production. The combination with animal husbandry

generated economies of scale as mentioned before. Using the technologies of the First Industrial Revolution represented by steam-powered machines and those of the Second Industrial Revolution led by electricity/gas-driven ones, the Western countries were growing rapidly with capitalistic agriculture and industry. (Oshima 1987: 35-36, 38, 41, 45)

In contrast, although the civilizations of China and India were second to none during most of the first millennium A.D. and into the first half of the second millennium A.D., they began to fall behind the West. By the end of the 19th century, monsoon Asia became one of the poorest regions in the world, densely packed with tiny farms and traditional handicraft and, eventually, falling prey to the stronger West. Monsoon Asia's rice farms were not transformed into capitalistic operations, remaining essentially peasant agriculture depending on family labor. Oshima held that the reason for this was that the agriculture of these countries was a different type from that of the West, and that for this type of agriculture capitalism was not a suitable form of organization, and it was the *complexity* of Asian agricultural systems that blocked the transfer of the technology and institutions emerging in the post-medieval centuries in Europe to Asian rice farms. (Oshima 1993: 4. Oshima 1987: 35-36). Similarly, Bray argues that the reason must lie in the conditions of rice production (Bray 1986: xiii-xiv). To monsoon Asia, the following trend might be perceived. (1) The monsoon climate led to a sophisticated rice culture. (2) The technological innovations of the West up to the First Industrial Revolution were almost entirely irrelevant. (3) Therefore, capitalistic large-scale farming was not feasible before WWII.

Sophisticated rice culture.

Oshima points out that even in the centuries before Christ, the technological movement of paddy rice cultivation was toward sophistication, with deep plowing, terracing, green and organic manuring, ratooning and small- and large-scale irrigation and drainage appearing in northern China. Then, in the early centuries of the first millennium, transplanting began raising not only yields but also labor requirements, as seedling beds, transplanting, thorough land preparation, water management, careful cultivation and time-consuming reaping called for more labor. And in the first century of the second millennium came multiple cropping with the use of short-duration, drought-resistant seeds from Vietnam, raising even further the complexity (and the labor intensity) of land and

seedling-bed preparations, transplantation, water management, reaping and threshing with tight schedules as one crop was harvested and the next put in immediately and with greater crop diversification. (Oshima 1987: 36). Elvin believes that by the 13th century China thus had what was probably the most sophisticated agriculture in the world, India being the only conceivable rival (Elvin 1973: 129). In the centuries following, each of these began to be further improved, largely by the use of more labor. These improved technologies and methods were diffused over wider areas of China and beyond. (Chang; Vegara & Yoshida 1976)

Bray argues that the techniques were as such that farmers themselves have been able to select for desirable traits through the centuries, so a very wide range of cultivation could be developed. By keeping a range of varieties in stock the farmer could protect himself in fair measure against the risk of drought or flood. Actually, rice farmers usually grew several different varieties of rice in any one season, partly to provide for different requirements and partly as a means of minimizing their risks. The farmer could also increase his income, either by producing more rice, or by combining rice cultivation with more profitable activities like cash-cropping. (Bray 1986: 16-17, 25-26)

King went to China, Japan and Korea in the early 1900's to find out how people could farm the same fields for 4,000 years without destroying their fertility and how farmers could support families of 12 to 15 people on less than two acres, and do it generation after generation without buying fertilizer. What King saw was an essentially intensive and sophisticated agriculture and a farm system where nothing was wasted. (King 1911: covers. The following arguments concerning canals, multiple and diversified cropping, combination of irrigation and dry farming methods, biological fertilizers are derived from King 1911: 8-11)

Canals. A conservative estimate would place the miles of canals in China at fully 200,000. The miles of canals in China, Korea and Japan were probably greater than those of railroads in the US.

Multiple and diversified cropping. China alone had as many acres in rice each year as the US had in wheat. Its annual product was more than double and probably threefold the US annual wheat crop. Yet the rice area produced one or two other crops each year. The Oriental farmer was a time economizer beyond all others. He utilized the first and last minute and all that were between. The

foreigner accused Chinese of being always long on time, never in a fret, never in a hurry. This was quite true and made possible for the reason that they were a people who definitely set their faces toward the future and led time by the forelock. They have long realized that much time is required to transform organic matter into forms available for plant food. Although they were the heaviest users of the organic manure in the world, the largest portion of this organic matter was predigested with soil or subsoil before it was applied to their fields, and at an enormous cost of time and labor. But it lengthened their growing season and enabled them to adopt a system of multiple cropping which would not otherwise be possible. By planting in hills and rows with intertillage it was very common to see three crops growing upon the same field at one time, but in different stages of maturity, one nearly ready to harvest; one just coming up, and the other at the stage when it is drawing most heavily upon the soil. With heavy fertilizer and by supplemental irrigation, the soil was made to do full duty throughout the growing season.

Combination of irrigation and dry farming methods. This was made by the Far East farmers with rare wisdom to an extent and with an intensity far beyond anything the Western people have ever dreamed, in order to maintain dense population. The selection of the quick-maturing, drought-resisting millets as the great staple food crops to be grown wherever water was not available, and the almost universal planting in hills or drills, permitting intertillage, thus adopting centuries ago the utilization of earth mulches in conserving soil moisture, has enabled these people to secure maximum returns in seasons of drought. The millets thrived in the hot summer climates; they survived when the available soil moisture was reduced to a low limit, and they grew vigorously when the heavy rains came. Every spear of rice was transplanted. They saved in many ways except for labor, which they had in excess. By thoroughly preparing the seed bed, fertilizing highly and giving the most careful attention, they were able to grow on one acre, during 30 to 50 days, enough plants to occupy 10 acres and in the mean time on the other nine acres crops were maturing, being harvested and the fields being fitted to receive the rice when it was ready for transplanting. In effect, the interval of time was added to the growing season.

Biological fertilizers. Although in these countries the soils were naturally more than ordinarily deep, inherently fertile and enduring, judicious and rational

methods of fertilization were everywhere practiced; but not until recent years, and only in Japan, had mineral commercial fertilizers been used. For centuries, however, all cultivated land, including adjacent hill and mountain sides, the canals, streams and the sea have been made to contribute greatly to the fertilization of cultivated fields. All but the inaccessible portions of their mountain and hill land have long been taxed to their full capacity for fuel, lumber and herbage for green manure and compost material.

The *ash of fuel and lumber* used at home found its way to the fields as fertilizer. *Canal mud* of enormous quantity was applied to the fields, sometimes even 70 and more tons per acre in China. *Compost* was made by carrying soil and subsoil into villages in China. Between the intervals they were composted with organic refuse and often afterwards dried and pulverized before being carried back and used on the fields. Japan's production of fertilizing material, regularly prepared and applied to the land annually, amounted to more than 4.5 tons per acre of cultivated field exclusive of the commercial fertilizers purchased.

Manure of human and animal was saved and applied to the fields. In Japan the amount of human waste was 23,950,295 tons, or 1.75 tons per acre of cultivated land in 1908. In the same year, the International Concession of Shanghai sold to a Chinese contractor the privilege of entering residences and public places early in the morning of each day and removing the night soil, receiving more than $ 31,000 in gold for 78,000 tons of waste. All of this the Western people not only threw away but spent much larger sums to do so.

Leguminous plants acting as hosts for lower organisms living on their roots are largely responsible for the maintenance of soil nitrogen, drawing it directly from the air to which it is returned through the processes of decay. It was not until the 1910s, generated by the best scientists of all Europe, that this was finally conceded. But centuries of practice had taught the Far East farmers whom the Western people regarded as ignorant, that the culture of these crops is essential to enduring fertility, and so the growing of legumes in rotation with other crops was extensive. Just before, or immediately after the rice crop was harvested, fields were often sowed to clover which was allowed to grow until near the next transplanting time when it was either turned under directly, or more often stacked along the canals and saturated with soft mud dipped from the bottom of the canal. After fermenting 20-30 days, it was applied to the field.

Therefore, Oshima argues that it is the *complexity*, rather than "the simplicity (as Marx holds) of the organization for production in these self-sufficing communities that constantly reproduce themselves in the same form ... that supplies the key to the secret of the unchangeableness of Asiatic societies, an unchangeableness in such striking contrast with the constant dissolution and refounding of Asiatic States, and the never-ceasing changes of dynasty." (Oshima 1987: 34-36. Marx 1887: 338-339)

Unsuitability of the Western technologies.

The technological innovations of the West up to the First Industrial Revolution were almost entirely irrelevant to monsoon agriculture. Oshima writes that drilling in place of transplanting would have caused yields to fall substantially; drainage systems were far more advanced and intricate in Asia; and it was multiple cropping rather than crop rotation and fallowing systems that Asia needed. Nor were improvements in scythes and cradles of any use as the easily shattered and lodged rice plant required knives and smaller sickles. The steam-powered machines of the First Industrial Revolution were not suitable either. They require large boilers, shafts, transmission lines, and other equipment, which the Asian factories and farms were too small to afford. (Oshima 1987: 37. Oshima 1993: 4-5). Therefore, the Western technologies up to the 19th century could not be adopted in the monsoon Asia rice economy.

Unfeasibility of capitalistic large-scale farming.

The most important Western institutional innovation, capitalistic large-scale farming, was not feasible before WWII. Oshima states that the rice culture of monsoon Asia was too complex. To feed the enormous population with so little arable land, the technology that evolved became not only intensive but intricate: deep and thorough plowing several times, the fine puddling and harrowing, elaborately prepared seedling beds, properly spaced transplantation, finely tuned watering, weed and insect controls, careful reaping of a crop prone to lodge and shatter - and all this carried out within a tight schedule imposed by the coming and going of monsoon rains. This is not the kind of work which can be done well by low-paid wage workers or adequately supervised by a few managers on a large farm. Nor could work animals and the steam-powered machines of the First Industrial Revolution be substituted for the highly labor-intensive operations of transplanting and reaping. With the traditional

technologies, only on small farms with close coordination and the cooperation of highly motivated family workers who received all the returns after paying taxes, rents and costs could productivity per hectare rise to high levels in the arduous and demanding husbandry of monsoon paddy agriculture. (Oshima 1987: 37)

Bray writes that rice yields are directly related to the efficacy of management of the water supply and until very recently this imposed restrictions on the size of wet-rice fields and was an important barrier to mechanical rationalization of the European type. Given the large investment in labor and time required to develop a productive rice field, there was instead a strong incentive to evolve land-saving skills in both technical and managerial terms. Effective supervision of such skilled work is highly demanding, and as rice cultivation systems became more productive there was a marked tendency for units of management to become smaller rather than larger, usually taking the form of family farms supplying the bulk of their own labor. (Bray 1986: 150)

Oshima further indicates that large-scale agriculture (capitalistically managed or otherwise) could not produce the necessary yields per hectare and capitalistic rice-growing was a low-productivity undertaking, as the Japanese found to their dismay when they attempted to introduce Western technologies after the Meiji Restoration. In the 1870s and 1880s, the new Meiji government attempted to establish Western agricultural methods in Japan but found that the large machines were not suited to small farms and had to abandon the efforts, although some successes were achieved in spacious Hokkaido, Japan's northern-most island, which lies outside the monsoon zone. As a result, Japan had to colonize Taiwan (1895) and Korea (1910) in order to produce the rice for its industrial workers and create markets for its industrial products. In the Philippines beginning in the 19th century, plantations were operated capitalistically with a hired labor force for the growing of less labor-intensive commercial crops like sugar, coconut, rubber and bananas, but the large rice estates of the Spanish friars and Filipino oligarchies were rented out to tenants in small parcels for their families to work on. (Oshima 1987: 37-39, 42)

Berry, Cline, Binswanger, Deininger and Feder claim that there is an inverse relationship of farm size to land productivity in monsoon Asia which is evidence that large-scale farms are less productive than the small ones under the traditional technologies (Berry & Cline 1979. Binswanger; Deininger & Feder

1993).

Therefore, with the traditional technologies or the steam-powered machines of the First Industrial Revolution, large-scale farming was impossible. The electricity/gas-driven machines of the Second Industrial Revolution of the 20th century were suitable to both the fragmented small farms and large farms of monsoon Asia, but their introduction to monsoon Asia was mainly after WWII. Even in the present era, the traditional technologies still dominate the agriculture of most rice-based economies in monsoon Asia, which together with other factors determine the small farm size.

Feudal Landlord Ownership and Persistent Poverty

The three previous sections have dealt with the "vicious circle" of poverty of prewar monsoon Asia mainly in terms of the productive and technological conditions. This section touches its institutional aspects, especially the feudal landlord ownership. It will be relatively brief, granted that (1) it is already well-known that feudal landlord ownership was one of the major causes of rural poverty and that most monsoon Asian economies have undertaken land reform; (2) there is a huge literature on this topic but it seems difficult to analyze this issue for so many economies in one section. Wickizer and Bennett only use some quotations and believe that they have properly indicated the desperately poverty-stricken position of farmers in many monsoon Asian countries (Wickizer & Bennett 1941: 168-169). This method is in accordance with the Oshima approach of narrative analysis or analytical description, which is also used here.

As Oshima points out, with the old structure of the peasant production unchanged, the traditional structure of power (with the imperial system on top, the bureaucracy below, and the gentry in the towns and villages) remained intact through most of the latter half of this millennium. This power structure did everything to preserve the old mode of production of which it was part and parcel and without which it would have become redundant. Thus, it was inconceivable for the agricultural revolutions of the West to be transplanted to Asian soil in prewar times. (Oshima 1987: 42)

Up to the end of WWII, feudal landlord ownership had been dominant: a few landlords owned large estates while most peasants owned little or no land and

had to be tenants or farm workers. The poverty of rice growers and the hopeless position under the feudal landlord ownership were mainly caused by tenancy and loss of land ownership; usury and growing debt; and unfavorable marketing machinery (Wickizer & Bennett 1941: 169). The tenancy system thus constituted serious barriers to agricultural growth (Ash 1976: 50).

Tenancy and loss of land ownership.

In *Myanmar*, the tendency for a large tenant class to develop was unmistakable. Much of the lands had passed into other hands from previous owner cultivators, who then had been reduced to the position of tenants on land formerly held by themselves. In 1929, nearly 45 % of the total occupied area in Lower Myanmar was let to tenants. (Wickizer & Bennett 1941: 169)

Table 2.7 Structure of Rural Land Ownership and Use in China in the 1930s

Rural class	Rural population %	Rural land ownership %	Feudal tenancy %	Capitalistic operation %
Landlords	4	50	70	30
Rich peasants	6	18		
Middle peasants	20	15		
Poor peasants	60	17		
Farm laborers	10			

Note: Landlords did not labor and lived by renting out land. Rich peasants hired wage labor but also labored, as agricultural capitalists. Middle peasants normally tilled their own land, as owner-peasants. Poor peasants generally rented land, as tenants. Farm laborers mainly worked as wage laborers.
Sources: Sun, Wu-Xia 1986: 21. Huang, Xi-Yuan 1986: 148. PD 1992. Mao, Ze-Dong 1926: 4-10. Mao, Ze-Dong 1933: 113-115.

In *Korea*, if part-owners were included, almost four out of every five Korean farmers were tenants. The large proportion of tenancy in Korea had few parallels in the world. (Lee 1936: 159). This country used to be referred to as the "land of spring hunger" (Oshima 1987: 29).

In *China* in the 1930s, as Table 2.7 shows, the landlords accounted for only 4 % of the rural population but owned 50 % of the rural land. Poor peasants and farm laborers accounted for 60 % and 10 % of the rural population respectively but they together owned only 17 % of the rural land. 47 % of the

land owned by the landlords and rich peasants were for tenancy. The level of rent in kind and money was very high, as Table 2.8 shows. Besides, there was also rent in services. For example, the tenants had to work for their landlords on ceremonial occasions or Festival Days (Pan & Chuan 1952: 8).

Table 2.8 Average Rents on Paddy and Dry-crop Land in Jiangsu Province, East China # and China in 1930

	Paddy land			Dry-crop land		
	Jiangsu	East China	China	Jiangsu	East China	China
Cash rent as percentage of land value						
Good land	8.1	8.7	10.3	8.6	10.6	10.5
Medium land	8.2	8.7	11.3	9.5	11.4	10.9
Poor land	8.7	10.1	12.0	10.4	13.2	12.0
Fixed crop rent as percentage of gross output						
Good land	44.3	42.2	46.3	39.4	44.2 *	45.3
Medium land	48.6	46.1	46.2	42.0	43.5 *	44.6
Poor land	49.9	49.7	45.8	38.3	41.0 *	44.4
Share crop rent as percentage of gross output						
Good land	46.7	55.5	51.5	44.2	44.6	47.8
Medium land	45.4	53.9	48.0	44.5	43.2	45.3
Poor land	43.4	52.9	44.9	46.8	43.2 *	43.6

Notes: # That is Jiangsu, Anhui and Zhejiang provinces.
* These figures are for Jiangsu and Zhejiang only.
Sources: SA 1942: 76-77. Ash 1976: 34-35.

Usury and growing debt.

For many years the plight of the *Filipino* tenant or small farmer had been the lot of the down-trodden. For every peso that he borrowed, he paid interest that was confiscatory, more than usurious. For every sack of rice that he got at P 6 to P 7, he paid in palay (rough rice) when the price was as low as from P 1.20 to

P 1.50, or about five sacks of palay for a sack of rice. Compelled by poverty to convert into ready cash his usually small share of the crop, he sold it at prices below production cost. He went deeper into debt with no hope for salvation. (Buencamino 1937: 2-3)

The cultivator in *India* working on tiny parcels had to borrow, while the creditor pounced on any portion of the land he could secure. Even the very rights which the cultivator had in his land stood in the way of an adjustment between labor supply and demand. For the cultivator did not renounce those rights and go in search of employment in the industrial centers except in the last extremity. The tendency of the non-agriculturist to take possession of the agriculturist's land was increasing in every province. (Mukerjee 1926: 64)

Ash records that in the 1920s-30s, in south of Jiangsu Province of *China*, there was a folksong: "Two knives are at a peasant's back: The Grain is heavy, the interest is high. Three ways before him stand: To drown, to hang or to languish in gaol." (Ash 1976: 3). The small peasant in China, as in other countries, was often unable to survive the interval between sowing and harvesting without borrowing. Indebtedness was a major source of rural discontent. Buck reports that 39 % of the farmers surveyed in 1929-33 were in debt (Buck 1937: 464). The National Agricultural Research Bureau estimates that in 1933, 56 % of farms had borrowed cash and 48 % had borrowed grain for food (CR Apr. 1934: 30). A third national estimate noted that 43.87 % of farm families were in debt in 1935 (NLC 1937: 51). All observers agree overwhelmingly that the rural debt had been incurred to meet household consumption needs rather than for investment in production, and that for the poorer peasants indebtedness was the rule (Buck 1937: 461, 464). Interest rates were high. This was a reflection of the desperate needs of the peasant, the shortage of capital in rural China, the risk of default and the absence of alternative modern lending facilities of either the government or cooperatives. On small loans in kind, an annual rate of 100 % to 200 % might be charged. The bulk of peasant loans, perhaps 2/3, paid annual rates of 20 % to 40 %; about 1/10 paid less than 20 %; and the rest, more than 40 %. About 2/3 of all loans were for periods of six months to one year. (CR Nov. 1934: 108-109). Agricultural credit came largely from individuals - landlords, wealthier farmers and merchants (Feuerwerker 1983: 87).

Unfavorable marketing machinery.

The cultivation of rice had been continuously and universally carried on in Japan proper from very early times, but the methods of production and marketing, which were handed down by tradition, had not been much improved upon. All who were informed on rural conditions knew well how greatly in need of cash these farmers were. They put their rice on the market as soon as it was harvested, causing thereby a glut in the market, and consequently found that they must sell their products at a terrible discount. More than half of the total amount of rice sold by cultivators was marketed from November to January. This fact alone would account fully for any great seasonal fluctuations in the price of rice. The fact that so many farmers had to buy their own rice was contrary to the common belief that the farmer consumed the rice which he cultivated. (Tobata 1935: 161-165)

On the average about 60 % to 70 % of the total quantity of polished white rice marketed in Wuchin, Jiangsu Province, *China,* was sold in the months of December to April. In 1929, farmers in Nanjing sold nearly all of their product at $ 0.124 per sheng in September and October just after harvest time. Then in the next spring, having nothing to eat, they were forced in April and May to buy or borrow from the grain merchant at $ 0.162 per sheng. The price had risen 30 %. In 1930, two units of products were only enough to pay one unit of debt. Interest was generally 20 % to 30 % annually. The poor became poorer and the rich richer. (Chang 1932: 15-16)

Feudal barriers to agricultural growth.

Ash holds that such barriers inherent in the institutional framework of the rural sector were considerable. Increased inequality in land ownership and growing numbers of landless peasants, increasing indebtedness among the peasantry and neglect of the economic infrastructure were the factors held responsible for *China's* agricultural stagnation and rural impoverishment before 1949. For example, in Jiangsu Province in the 1920s and 30s, lack of security of tenure, high rents and other exploitative practices as well as a one-sided relationship between landlord and tenant gave rise to a situation in which both the incentive and the material means to undertake net farm investment were lacking. The obligation to pay rent affected a peasant's expenditure on both subsistence and production. To this extent, the tenancy system posed a serious constraint upon

productive farming activities. (Ash 1976: 1, 50-51)

Up to WWI, labor shortage in the peak seasons was the rule throughout Asia. But during the depression of the 1930s (and the labor force explosion from the late 1960s on) large pools of surplus labor made their appearance as much of the labor force was not needed even for the busy months. (Oshima 1987: 40, 49). In China before 1949, under the dominance of feudal landlord ownership in agriculture, the growth of rural population higher than that of cultivated land brought competition in renting land and hence an increase in land rent. There were three major harmful externalities.

First, this was favorable to the landlords because facing excessive numbers of peasants competing for renting land, they could charge higher land rent so that they were encouraged to annex more land. Therefore, the feudal landlord ownership was strengthened and concentration of land ownership was accelerated.

Second, this was unfavorable to even the small-scale capitalistic farmers. The higher land rent hampered them from renting land from landlords for operating capitalistic farms by hiring farm laborers. In China, as the rich peasants (agricultural capitalists) accumulated more capital, instead of enlarging capitalistic farms, owning more advanced production tools and technology and employing more farm laborers, they tried to buy and then rent out more land for more land rent. This was essentially because the feudal land rent was very high and stable. Renting out land to earn secured high land rent was much more beneficial and comfortable than renting land to operate it as a capitalistic farm by doing management, participating in labor and bearing natural and market risks. Therefore, they retrograded toward landlords. For example, in five counties of four provinces (Jiangsu et al), of all rich peasants, those who rented out land for feudal rent increased from 0.3 % -18.8 % in 1928 to 0.4 % - 20.7 % in 1933. In Xiangyang County of Hubei Province, during 1924-36, rich peasants and operating landlords (landlords who also hired wage labor) decreased by 30 %. (Zhang, You-Yi III: 832, 836-837). By the same reason, the high and secured land rent also induced capitalists in industry, commerce and handicraft to invest in buying land for feudal tenancy. Hence it retarded the development of capitalism in all fields.

Third, this was much more unfavorable to the peasants. The landlords only rented out land to those bidding for the highest rent, due to more peasants

competing for relatively less land, hence driving many peasants to be vagrants. Those who had got tenancy could not maintain a minimum living with the after-rent residual either. Some of the peasants who left reclaimed wasteland in the cold and high mountains of the Northeast, where population was scarce and land available. But in so doing, they were still under the exploitation of the local landlords and, during 1937-45, under the suppression of Japan. Some went to cities to become coolies. Others went abroad to be the cheapest laborers. (Huang, Xi-Yuan 1986: 269). Many of them just became vagrants so that there was a vagrant stratum in both countryside and cities before 1949 (Mao, Ze-Dong 1926: 8-9).

Since WWII, the feudal ownership has been completely reformed in *Cambodia*, *China*, *Japan*, *North Korea*, *South Korea*, *Myanmar*, *Taiwan* and *Vietnam*, but remained incompletely changed or even intact in some other economies.

In *India*, in most areas, the largest land holdings were redistributed, but relatively smaller landlords still exist (Barker; Herdt & Rose 1985: 35). These are very powerful and have their own security forces (Oshima 1987: 226. Oshima 1993: 246).

In the *Philippines*, after the 1972 land reform, relatively few rice farmers owned their land (Barker; Herdt & Rose 1985: 35). The landed oligarchy was even more powerful, as they owned private armies and dominated local politics (Oshima 1993: 246-247). In 1988, new land reform to cover all land was started, but was criticized for its vulnerability to manipulation at local level. In 1995 the program was consequently significantly behind the target (Hodgkinson 1996: 913).

In *Bangladesh*, land reform has been pursued, the largest estates were acquired, individual ownership founded, land-holding ceilings established and minimum wages for agricultural labor determined (Hussain 1995: 79, 91, 112). But the ownership pattern is still characterized by considerable inequality in landholding (Khan 1997: 122).

In *Sri Lanka*, the 1972 Land Reform Act fixed a ceiling of 10.1 ha on paddy holdings per family, which was so large that the previous paddy ownership was practically untouched (De A. Samarasinghe 1997: 990).

In *Malaysia*, while Malays and other indigenous people concentrate on the traditional subsistence agriculture, other races hold larger land (Bray 1986: 185.

Edwards 1997: 572-574, 579).

In *Thailand*, in many rural areas, there is an acute shortage of land, with a few rich owning large land alongside many landless people (Dixon 1997: 1028. Richardson 1997: 1).

In *Pakistan*, there have been only very limited steps taken to reduce the size of the largest holdings and to transfer land rights to the actual cultivators (Taylor 1997: 875).

In *Indonesia*, land reform laws of 1960 and 1961 were not implemented after 1966 and landlessness was an increasingly severe problem (Bray 1986: 187-188, 191). There is a variety of distributional imbalances (Hobohm 1997: 372).

In *Bhutan* and *Nepal*, the serf-holder and landlord systems stay largely intact. The rural poverty in these countries is related to such systems. (Oshima 1993: 247. Khanal 1995: 41-44)

Moreover, *slavery* - a system historically more backward than feudalism - still is flourishing, especially in South Asia. Poverty drive peasants to usury which in turn make them debt-bonded. Bonded workers agree to sell their labor in exchange for a lump sum to pay, e.g., a big medical bill. But the line is easily crossed into slavery, when low wages, high interest rates and cheating make the debt impossible to repay. In South Asia, many people are illiterate, ignorant of their rights, and thus easily deceived. For example, in Nepal and Pakistan, millions of bonded laborers work in farming. Bonded debts can be passed on to the next generation. Those who are deemed not to have paid their debt can be sold to another landlord. If a man escapes his place of slavery, his family can be held until he returns, or sold if he does not. Bonded peasants can be sold into marriage. Bonded slavery can also be found in prostitution and industry as well. Although laws have been passed to forbid slavery, little has been done to enforce them. (Eco 1996: 45-46)

"Vicious Circle" of Poverty within Agriculture and between Agriculture and Industry

In sum, as Oshima indicates, before the end of WWII, there was a "vicious circle" of poverty in monsoon Asia (Oshima 1993: 4). It existed not only within agriculture but also between agriculture and industry.

"Vicious circle" of poverty within agriculture.

Heavy monsoon rains fall for six months of the year, while there is little rain during the other six months, giving rise in monsoon Asia to an agriculture different from that of the West and other regions, i.e., paddy rice culture, which over the centuries has become very labor-intensive. Up to the end of WWII, for maximum yields, many workers were needed for planting, harvesting and threshing. As population increased faster than available land, farm size diminished and densities rose to the greatest in the world, rice culture became more and more labor-intensive and sophisticated, which demanded even more labor. But in the dry half year, this enormous labor force was unable to find sufficient work. Some found work in handicraft which was never separated from agriculture but also declined facing the cheaper products made by machines from the West. (Oshima 1993: 3). The more labor force was needed in the wet seasons, the more labor force was underemployed, unemployed or disguisedly unemployed in the dry seasons, which in turn called for even more labor force in order to produce more food for the population to survive the dry seasons or "spring hunger", which again caused smaller and more fragmented farms, greater densities and higher under-, un- an disguised un-employment in the dry half year. *Hence a "vicious circle" of poverty within agriculture.*

"Vicious circle" of poverty between agriculture and industry.

The development of industry required year-round supply of labor, but the unlimited supply of labor was only in the dry half year. In order to induce peasants to abandon farming, a high enough wage gap was needed, which the factories, with the steam-powered machines of the First Industrial Revolution and low productivity, were unable to provide. Even if it could be provided, the labor force shortage in the peak seasons would reduce the agricultural output. And even if industry could acquire labor from other sources (e.g., the daughters of the unemployed samurai in Japan after the Meiji Restoration), agriculture could not provide enough food due to its low productivity. The industrial sector also needed a huge rural market for its products, but the poverty of peasants impeded the establishment of such a market. Therefore, the emergence of modern industry was hampered. The slow growth of industry could not generate enough wealth which might then be used to aid agricultural development. *Hence a "vicious circle" of poverty between agriculture and industry.*

Capitalistic large-scale farming was not feasible, because the technological innovations of the West up to the First Industrial Revolution were almost entirely irrelevant to the highly labor-intensive and sophisticated rice culture. The electricity/gas-driven machines of the Second Industrial Revolution were suitable but they needed education and technological help, of which the illiterate peasants themselves could not partake. More serious was the institutional and power structure, especially the feudal landlord ownership system, which strengthened the "vicious circle" of poverty. The free market forces alone could not shatter the "vicious circle" and realize sustainable rural development. Therefore, it was necessary to resort to a mixed economy in the postwar era.

V. The Postwar Initial Conditions for Development in Monsoon Asia

In the initial postwar era, the three above-mentioned traditional productive and technological conditions, i.e., (1) highly labor-intensive rice culture leading to labor force shortage in the peak seasons, high population densities, and fragmented small farms; (2) little employment in the slack seasons; (3) unfeasibility of capitalistic large-scale farming, still existed; and one institutional condition, i.e., feudal landlord ownership, still remained in some countries. These were particular to monsoon Asia and different from the characteristics of Europe.

Besides, there were a number of initial economic and social conditions which were also very important and of which Kuznets, Myrdal and Ishikawa have done special analyses. Their common point of view is that the initial conditions facing the postwar developing countries in monsoon Asia were different from those for the advanced countries at their past comparable stages of economic development. (Kuznets 1960. Myrdal 1972: 49-50. Ishikawa 1967: 1, 4). This section reviews those initial conditions most relevant to rural development, excluding those in culture, politics, industry and foreign trade. In comparison with these authors, my finding in this section is that these initial conditions were also applicable to the immediate postwar Japan, which they do not note.

Low Per Capita Income

Kuznets takes up eight industrialized countries: US, UK, Canada, France, Germany, Sweden, Denmark and Italy and compares their per capita national incomes around the years 1840 to 1850 with those in postwar underdeveloped countries. He finds that the per capita incomes for most of these countries were, expressed in the US dollar value in 1949 prices, between $ 150 and $ 300, with the exception of Sweden and Italy, where they were $ 110 and $ 90 respectively. In contrast, per capita incomes for most developing countries in Asia in 1949 were less than $ 60. (Kuznets 1954: 144). Japan's position in the early Meiji era seemed in this regard in between the Western European countries and the postwar developing countries. The per capita income in the early Meiji era (in the 1870s) was roughly $ 65 at the postwar rate of exchange as counted by Ohkawa and Rosovsky. (Ohkawa & Rosovsky 1965: 54). But in the initial postwar period it was also low as Japan suffered from devastation. With acute food shortage and hyperinflation the majority of Japanese people only maintained a subsistence. (Hayami 1988: 43)

Myrdal's broad impression is that on the Indian subcontinent the masses lived in worse poverty than did those in the Western European countries at any time during the several centuries before the Second Industrial Revolution. In Malaya, the *average* economic level may have been higher than in the Western European countries at the time the Second Industrial Revolution began. The other South and Southeast Asian countries fell somewhere in between. But on the Indian subcontinent, social *inequality* was more pervasive and more detrimental to free competition, in the wider sense of the term, than anywhere in the Western world in recent centuries. He recognizes that it was true that the great poverty in South and Southeast Asia, particularly in those countries with the bulk of its population, was in itself a major barrier to development. The foreseeable increases in population would lead to further lowering of living standards unless resolute development policies were pursued, and this trend implied another difference in initial conditions, detrimental to all the South and Southeast Asian countries. (Myrdal 1972: 53-54)

Ishikawa points out that the causes may be that the positions of both per capita natural resources and accumulated capital have been much more unfavor-

able in the postwar developing countries, and these were closely related to the initial conditions described below (Ishikawa 1967: 10-11). Myrdal also remarks that (relative to the science and technology at the beginning of the postwar period) South and Southeast Asia, as a region, was poorly endowed with resources. Only India was known to have enough coal and iron ore to support heavy industry. With the exception of Indonesia, there did not seem to be much oil in the region. Land resources were often poor, either because they were that way to begin with or because they had been damaged by overcrowding and climate. There were exceptions, however. Sri Lanka had excellent, though limited, land for producing tea, coconuts and rubber. Malaya and Indonesia also had excellent and less limited land for growing rubber. There were large forested areas in Malaya, Thailand, Myanmar, Sri Lanka and the Philippines not yet fully utilized. (Myrdal 1972: 50-51)

This initial condition was likely to bring about special problems in economic development. On one hand, it tended to bring down the potential rate of growth (the maximum growth rate attainable through the development mechanism without foreign aid) of the economy by raising the consumption ratio of national income or pressing down the savings ratio, when the institutional conditions governing the income distribution was given. On the other, however, it tended to raise the required rate of growth (the minimum rate of growth to be attained in order to make economic development itself possible), since people's expectations for a higher per capita income would be higher under this state as the price for the same degree of belt-tightening during the period of deliberate economic development. (Ishikawa 1967: 8-9, 11)

Vast Population and a Huge Labor Force

Kuznets notes that the population of the present developed countries in their developing stages was much less and could emigrate to America and Australia in large numbers. In contrast, the postwar developing countries had a rapid population growth but emigration in such a dimension was impossible. (Kuznets 1954: 147-155. Kuznets 1960). Myrdal points out that in pre-industrial times, population growth in the West was comparatively slow. By contrast, population growth in South and Southeast Asia had been increasing over a very

long period, and was increasing even faster in the postwar period. The population explosion constituted a very important difference between monsoon Asian developing countries and the West in terms of their initial situation. (Myrdal 1972: 51-52)

Regarding the annual rates of population increase, in contrast to only 9 ‰ during 1880-1900 and 12 ‰ during 1900-20 in Japan, those in the postwar monsoon Asian developing countries were 12 ‰ during 1950/51-59/60 and 16 ‰ during 1960/61-62/63 in Myanmar; 27 ‰ during 1960-63 in Sri Lanka; 20 ‰ during 1953-57 in China; 33 ‰ during 1957-60 and 34 ‰ during 1961-63 in Taiwan Province of China; 18 ‰ during 1951/52-55/56, 22 ‰ during 1956/57-60-/61, 24 ‰ during 1961/62-65/66 in India; 25 ‰ during 1960-63 in South Korea; 34 ‰ during 1961-62 in Malaya; 23 ‰ during 1950/51-59/60 and 26 ‰ during 1960/61-63/64 in Pakistan; 32 ‰ during 1960-63 in the Philippines; and 30 ‰ during 1961-63 in Thailand. (United Nations 1964: 3. Ishikawa 1965. Planning Commission 1964. Banister 1987: 156, 352). For Japan, after WWII, the territory reduced by almost one-half and population increased by repatriates from colonies. Up to the mid-1950s, as the repatriates and demobilized soldiers did not have sufficient employment opportunities in cities, agricultural population increased by 20 % - 30 % over the prewar figure and the rural community was overcrowded. (ESJ 1955-56: 95-96. Hayami 1991: 83)

Ishikawa assumes that the basic difference between the past experience of the industrialized countries and the present state of the postwar monsoon Asian developing countries is that, in the former the rise in the rate of increase of population was via a decline in the crude death rate occurred after a substantial rise in per capita income, while in the latter a population explosion had taken place before any rise in per capita income. In the West, a decline in the rate of increase in population occurred in the past with a lag of several decades after the decline in the death rate via a decline in the crude birth rate. But in the postwar developing countries, in moving from a long period of high fertility and mortality levels to low levels of fertility and mortality, mortality fell first. Before fertility decreased, there was a period with both low mortality and high fertility, hence high population growth rates. (Ishikawa 1967: 11-12. Higgins 1959: 315-323. Oshima 1987: 56)

Essentially, because of the impact of these two initial conditions upon the

development process, the annual additions to the supply of labor force exceeded the additional employment which the economy was capable of providing at an existing wage rate. Such an imbalance, as it occurred, threatened economic development. The population explosion, together with existing surplus labor, created a serious social and political problem because of the ensuing employment imbalance. (Ishikawa 1967: 12-13)

The magnitude of the problem of productive employment of the total labor force in the postwar developing countries in monsoon Asia therefore was vastly greater than that of the advanced countries at their development stages (Ishikawa 1967: 18). Myrdal says that while industrialization is unquestionably of crucial importance for long-term development, the more immediate problem is agriculture (Myrdal 1972: 55). Ishikawa also thinks that for solving this problem, although the rapid growth of the urban industrial sector is a long-term measure and very important, some effective means of increasing productive employment *within the rural sector* as a short-term measure should be taken (Ishikawa 1967: 18).

Low Productivity in Peasant Agriculture

Kuznets further claims that there was a low per worker productivity in agriculture in the postwar developing countries (Kuznets 1960).

Ishikawa explains that in monsoon Asian agriculture, there were three distinct institutional patterns of production and management units: (1) small peasant agriculture (either in the form of owner-cultivator or under landlord-tenant relations), (2) collective farm agriculture (i.e., the agricultural producers' cooperatives and the people's communes of China) and (3) plantation agriculture.

The difference between the first two patterns and the last corresponded also to the difference between subsistence crop agriculture, centering around food grains (though in some countries, a substantial part of its output was exported) and specialized export crop agriculture. However, since the plantation sector was technologically and managerially advanced and its problems were mainly related to foreign trade, it is not taken into consideration here.

Moreover, the collective farm agriculture should be treated as a variant of peasant agriculture. This is because the form of collective farm in China was still substantially a cooperative of individual peasant farms, and the technological

foundation of these collective farms did not seem to have changed fundamentally from that in the peasant farm agriculture. Therefore, the analysis here will be confined to subsistence crop agriculture carried on in the peasant sector in a wider sense.

Peasant agriculture existed even in such export economies as Malaya and Sri Lanka. Increasing attention was paid to the problems of this agriculture after independence, under a policy of emphasizing self-sustaining food grains. This policy was needed, granted a relatively declining demand in the world market for plantation products as well as by a sudden increase in population growth. In such rice-exporting countries as Thailand and Myanmar, although the problem might appear subtle, it was becoming, as industrialization proceeded, urgent. This was due also to a declining demand for rice abroad and the "population explosion". (Ishikawa 1967: 19)

There were two basic, initial conditions specific to this peasant agriculture in monsoon Asia: (1) the virtual disappearance of the arable land frontier [similarly, Kuznets points out a much lower per capita and per agricultural worker supply of agricultural land (Kuznets 1960), and Myrdal remarks that the heavily populated areas started out with a considerably higher man/land ratio than did the European countries (Myrdal 1972: 51)] and (2) the lack of basic investment in water conservancy (such as flood control, irrigation and drainage). Due to condition (2), land productivity has remained very low in many developing countries of monsoon Asia, especially in those of South and Southeast Asia. Yet in prewar years, since condition (1) was not yet prevalent, it was possible for many countries to increase total agricultural output simply by extending the arable land frontier. Myanmar, Thailand and Vietnam were typical examples of this.

However, this course of increasing agricultural output has now been virtually stopped. To increase the per hectare output, basic investment in water conservancy seemed to be almost a precondition in those countries with very low land productivity. (Ishikawa 1967: 19-20)

Similarly, Myrdal notices the importance of climate conditions for development. Generally speaking, the extremes of heat and humidity in most South and Southeast Asian countries contributed to a deterioration of soil and many kinds of material goods; it bore partial responsibility for the low productivity of certain crops, forests and animals; and not only caused discomfort to

workers but also impaired their health and decreased the participation in, and duration and efficiency of, work. It was possible in some small ways to alter the climate; more important, the effects of climate on productivity could be changed in many ways, and both production and consumption could be better adapted to the climate. But this required expenditure, often of the investment type. (Myrdal 1972: 51)

A serious problem arising from the combination of a low per capita output and a high propensity to consume farm products in farm households was that the resulting small quantity of surplus or marketable farm products (defined as that part of farm products which remains after subtracting the self-consumed part of the farm products from the total products) tended to limit the possibility of industrialization to a narrow range. Because the non-farm labor force depends upon the marketable farm products for its subsistence and because the propensity to consume farm products of this labor force was also very high and inflexible, the number of workers who could be employed in the non-farm sector was largely determined by the availability of the marketable farm products. Moreover, insofar as this high propensity to consume held true over a fairly wide range of per capita output variation, a *small* increase in per capita output might not offer the solution to a limited quantity of marketable products, since most of such an increase was likely to be consumed on the spot where it was produced. (Ishikawa 1967: 21). Such consumption was necessary, according to Myrdal, because low incomes probably hampered development more by keeping down consumption than by limiting savings, since inferior living conditions reduced labor efficiency (Myrdal 1972: 53).

In order to solve the above bottleneck of the limited amount of marketable products by *considerably* raising land productivity, one problem arises. For such a solution, capital requirements would be substantial, since the productivity increase must be technologically preceded by a substantial amount of basic investment in water conservancy in the existing cultivated land. Here, the initial condition regarding the low saving and investment ratios comes in. Because of this, it may not be easy to rely fully upon local savings for meeting such capital requirements; but it may also be difficult to expect non-farm savings to flow into the farm sector without sacrificing the rate of development of modern industry. (Ishikawa 1967: 21)

The above initial conditions of monsoon Asian agriculture and the resulting problems are clearly in contrast to those of Western Europe in its early industrialization stage. When Rostow, in his familiar stage theory, considered as one of the preconditions for "take-off" the increased productivity in agriculture (Rostow 1960: 6, 21-24), what was in his mind was the European experience. In England, between 1730 and 1760, the medieval three-field system was almost replaced by new systems of continuous crop rotation, side by side with the introduction of new farming technologies such as drainage, manuring, deep-plowing and cattle- and sheep-breeding (Mantoux 1961: 156-163). Both labor and land productivity attained a considerable degree of progress before the First Industrial Revolution. Such technological innovations gradually spread over the continental countries in Europe toward the end of the 19th century. During the "take-off" periods, agricultural output and productivity moved markedly upward. (Boserup 1963: Chapter 12). In Japan also, economic development since the Meiji Restoration was accompanied by a considerable expansion of agricultural output and increase in productivity. With respect to agricultural inputs, progress was marked in the early Meiji period, especially in the nationwide spread of better technologies which had been developed and applied only locally in the Tokugawa era. The use of better seeds and more fertilizer was part of this technological progress. Basic investment in water conservancy had laid a foundation for the upsurge of agricultural production in the later Meiji period. (Ishikawa 1967: 21-22). In contrast, the postwar monsoon Asian developing countries did not possess these favorable conditions. Even in Japan, it became evident in the 1910s that the technological potential in agriculture exhausted when the rate of growth in agricultural output and productivity began to decelerate. During the interwar era, agriculture was relatively stagnant. New technological potential emerged, but militarism diverted the resources to wage WWII and stagnation lasted to the immediate postwar period. (Hayami 1988: 43. Hayami 1991: 77-83)

New Institutional Settings

Myrdal emphasizes that attitudes and institutions are more important than levels of income per se. However, the attitudes and institutions in South and Southeast Asian countries were less favorable than were those in the now

developed Western countries at the start of the Second Industrial Revolution, or even in the centuries before. (Myrdal 1972: 53-54). Among many new institutional settings, two are reviewed below.

Colonialism has been denounced.

Kuznets notes that the postwar developing countries had gained political independence after decades of colonial or semi-colonial status (Kuznets 1960). Therefore, as Ishikawa stresses, colonialism, spheres of influence or any other form of control of one nation by other nations can no more be implemented. In prewar days, most industrialized countries depended on colonies or spheres of influence to provide protected markets for product exports, raw material imports, or fields for capital investments. However, it was impossible for the postwar developing countries to adopt this approach. (Ishikawa 1967: 26)

The landlord-tenant system has been criticized or reformed.

In those countries where such a system developed (in Thailand and Malaya, the landlord-tenant system had been relatively minor), agrarian reforms of varying degrees have been enforced. These included land redistribution with or without compensation, abolition of intermediary tax collectors, reduction of land rent and security of tenancy contracts. In prewar days, this system was relatively secure. In Japan, the government in the Meiji era even extended protection to this system. The landlords in the early Meiji era, improved farming technologies and raised yields in their leased-out land. However, in postwar monsoon Asia, in those countries where extreme land redistribution has been made, landlords as well as capital investment by them no more exist. In those countries where agrarian reforms have been milder, a fear of further reforms has made the existing land tenure system insecure, thus preventing the landlords from attempting investment in agriculture. (Ishikawa 1967: 26). Therefore, new sources for capital investment in agriculture have to be found.

The Interactions of the Initial Conditions

Myrdal stresses that all of the differences in initial conditions made the problem of economic development more difficult for the nations of South and Southeast Asia than it once was for the Western nations (Myrdal 1972: 54). Ishikawa also addresses the problem that there were no ready measures to solve

the difficulties caused by the above-mentioned four categories of initial conditions, and any possible measures may be conflicting (Ishikawa 1967: 28).

For example, some of the most fundamental tasks for postwar economic development were: (1) to give employment to the increasing number of new entrants in the labor force as well as to eliminate the backlog of existing visible or disguised unemployment, and (2) to increase agricultural productivity so as to provide an adequate amount of agricultural surplus for the expanding industrial sector. Each of these tasks represents a new problem in economic development for which a ready-made prescription does not exist. (Ishikawa 1967: 28)

Moreover, these tasks are liable to conflict one another. (1) Measures to meet the first task regarding employment tend to require a higher speed of industrialization. If such measures are adopted, the marketable food products may become a bottleneck. When the requirement of such speedier industrialization deprives agriculture of part of the centralized investment funds otherwise to be allocated to it, this bottleneck will become more serious. (2) In order to make the above bottleneck disappear, a larger amount of basic investment in water conservancy would be required. However, when such investment requires diverting part of the centralized investment funds to agriculture, the speed of industrialization will be slowed down, and unless some additional labor-using technologies are developed, this is likely to result in a continuation of the unsolved employment problem. The result of reconciling these mutually conflicting tasks is a general slowing down of the rate of economic progress; thus the possibility arises in which the required rate of growth tends to approach, or even become larger than, the potential growth rate. (Ishikawa 1967: 28-29)

However, although very difficult as Ishikawa anticipates, the tasks of raising per capita income, employing a huge labor force, increasing productivity in peasant agriculture, finding new growth and investment sources under the new institutional settings, etc., would have to be fulfilled by the postwar monsoon developing economies (as well as Japan with a stagnant agriculture). Free market forces alone could not overcome the dual economy and realize sustainable rural development as the prewar experience had shown, so it was natural for them to turn to and strengthen the mixed economy.

VI. Variable Mixed Economies

Concept of Mixed Economy

Multiple structures of public and private ownership.

Holland has illustrated the multiple ownership in the postwar Western welfare states. He says that the postwar increases in welfare did not always take the form of growth plus redistribution through state welfare policies. Much of it came from structural shifts (i.e., shifts out of agriculture into industry and services) which had major social effects and especially the historic once-off transition from a peasant-based to an industrial economy. In Italy (as in Japan, Taiwan and South Korea) the increases in welfare were accompanied by a significant degree of land reform. Such changes in the ownership base in agriculture, rather than nationalization of industry or utilities, were important to the context within which welfare gains could be achieved. (Holland 1993: 8)

The postwar models of economic and social cohesion in Europe have depended on a nexus of cooperative horizontal and vertical links which have been crucial to ensuring that small and medium firms and farms - have been able to survive and by and large flourish for decades. In France and Italy this has included a major role for agricultural cooperatives in both production and distribution. In Italy, cooperative associations of small producers in Tuscany, Emilia Romagna and Veneto formed interest groups which worked in successful symbiosis with local and regional governments and local trade unions. Social partnerships in such cases, at the micro and local level, reinforced the sense of purposeful interaction between private interest groups and public institutions. This included not only regional public credit institutions, but also mutual credit institutions between small producers. (Holland 1993: 8)

Intervention rather than ownership.

Holland points out that while in postwar France and Italy, the mixed economy used more public planning and ownership, Germany adopted a model which was different - on ownership - but more effective - on planning. The German reconstruction involved extensive economic planning through the Kreditanstalt fur Wiederaufbau (KfW or KW - Reconstruction Loan Corporation). The underlying strength of the German economy lay in its big business groups,

its network of medium sized firms (Mittelstand) and public institutions. Through the chairmanship of Deutsche Bank President Herman Abs and with the representation on the KfW of all the main banks, which in turn were shareholders in all the leading companies in the economy, the KfW arguably was able to plan the allocation of Marshall Aid and counterpart finance as effectively - albeit with virtually no public profile - as did the much publicized First French Plan under the high profile leadership of its first director, Jean Monnet. (Shonfield 1969: 242, 253, 262, 276-282). Such planning for German reconstruction needed major public spending through Marshall Aid. But it did not need public ownership. Nor did it need a formal planning structure within the state rather than a symbiosis between a key public credit agency (the KfW) and the main private banks which, through their supervisory board membership on leading firms, knew where the strengths were which should be reinforced and the bottlenecks which needed widening. (Holland 1993: 6-8)

Concept of Variable Mixed Economies

According to Holland, there is a matrix of the mixed economy which includes *varying* relations between public and private economic power; public and economic interest groups; public and private institutions; public and private credit and finance; public and private regulations; public and private planning; public and private spending; public and private enterprises; public and private management. The relative balance and effectiveness of such factors in the public and private sectors varied both *between* economies and societies, and *within* them over time. The result was not one, two or three models but a range of discrete outcomes within a general paradigm of the mixed economy. (Holland 1993: 5-6). In this sense, Nuti's model of market socialism as outlined below also belongs to various mixed economies.

Various mixed economies not only imply varying relations between the public and private sectors, but also mean that dynamically, they should change over time in relation to changing needs in the economy and society. For example, in Japan, the Meiji dynasty achieved basic industrialization through public ownership, including some manufacturing firms. It was only with evidence of take-off that some of these were privatized. The model in this respect was similar

to that of the US after independence, when the post colonial states in several cases not only owned banks and financed infrastructure but also owned manufacturing companies. In fact, the US was one of the first countries to exhibit the modern tendency to extend the activity of the state into industry. (Holland 1994: 75, 188. Callender 1902: 111. Holland 1976 (b): 114-120)

In the postwar era, the South Korean government implemented what Wade calls a "Governed Market" policy (Wade 1990: 297). It fundamentally reshaped ownership through land reform and a publicly owned banking system. It created an enclave of relative stability for long-term investment decisions through its control of key parameters (foreign exchange rates, interest rates and aggregate demand). It modulated the economy's exposure to international competitive pressures in the domestic market through protection and exchange control. It imposed conditions on the activities of foreign companies in the country so as to gain benefits in terms of trade and technology transfer. It subsidized and promoted national champions. (Hamilton 1986). It also planned outcomes through the Economic Planning Board (Wade 1990: 200). Not least, an ostensibly private-enterprise economy utilized public ownership to an extent which parallels that of many countries advocating a socialist pattern of society (Jones & Sakong 1980: 141). In 1972, 12 of the 16 biggest industrial enterprises were public enterprises (Jones & Mason 1982: 38).

From the mid-1970s to early 1980s, the government promoted petrochemicals and other heavy and chemical industries (HCIS) including petrochemicals, steel, nonferrous metals, machinery, automobiles, shipbuilding and electronics.

But this too changed over time. During the 1980s, the government moved toward a follower rather than a leader role with the major South Korean companies, as they showed themselves capable of casting global shadows. It since has been concentrating more on basic research and development (R & D), leaving commercialization and marketing to the firms and setting its R & D agenda in consultation with them. (Wade 1990: 312-319)

Nuti's Model of Market Socialism

Of various arguments in Nuti's model of market socialism, the one most relevant to this thesis is as follows.

Nuti criticizes Mises's point of view that private ownership of the means of production was a precondition of markets, because only ultimate owners have the incentive to control their efficient use (Mises 1951). Hence, for Mises there was the dilemma: either socialism or markets, and there could not be such a thing as market socialism. Nuti believes that Mises was both right and wrong. He was right in that the appropriation of all, or a sizable fraction, of the capital gains deriving from successful enterprise seems a necessary precondition for the mobilization of entrepreneurial initiatives; but he was wrong in that this is all that is needed. (Nuti 1992: 22)

Nuti suggests a pluralist ownership. There can be a large but not exclusive or even necessarily predominant public ownership of productive capacity (state, local and cooperative) coexisting and competing on equal terms with a non-public sector. One form of privatization of management is the maintenance of a large state stake in national capital through state share-holdings in private companies. (Nuti 1992: 22-23)

Nuti also imagines an economy where the ownership of all means of production and their further reproduction is in the hand of the state, but these means are leased in competitive leasing markets to private entrepreneurs who retain a residual claim to both income and capital gains and are able to transfer those claims. Capital leasings - present on a small scale under the New Economic Policy during 1921-26 in the USSR - have reappeared widely in the recent reforms in East Europe, unfortunately on too small a scale.

There is a model of "entrepreneurial socialism" by the Hungarian economist Tibor Liska (Liska 1963) based precisely on the competitive leasing of state assets and their compulsory surrender to the highest bidder (however, with the additional bids belonging to bidders, not to the state), all citizens having a capital stake to invest or to use to exercise entrepreneurship (Barsony 1982: nos. 3-4. Nuti 1988: 2-6). Leasings, instead of privatization, are worthy of greater consideration than they have attracted in economic reform to date. Nuti stresses that this model of market socialism is a "Third Way" between the centrally planned economy and free market system. The exploration of such a model should be of interest to socialists and non-socialists alike, also in the West. (Nuti 1992: 17, 19-20, 22-23)

There may be different models of market socialism. In this thesis, market

socialism refers to that in Nuti's model.

Hence my *hypothesis*: the fragmented small farms as the last obstacle imposed by the monsoon in sustainable rural development of monsoon Asia may be overcome by variable mixed economies, increasingly along three main phases. *Phase 1*: sub-village individual-collective mixed economy (sub-village-wide cooperative/enterprise collective use of physically withdrawable private land shares, exercising collective-individual dual level operation of large land units, with the basic operation level at one household or at a farming unit including a number of households). *Phase 2*: village-wide individual-collective mixed economy. *Phase 3*: either large-scale farming public-individual mixed economy or corporate-individual mixed economy (collective use of either public land, or physically unwithdrawable private land shares under corporate ownership, exercising village-individual dual level operation of large land units, with the basic operation level at one household or at cooperative/enterprise including a number of households, as a third way between the centrally planned economy and free market system). Hence also the *focus* of the following chapters: how to consolidate and enlarge the fragmented small farms in monsoon Asia under private and public land ownership with reference to the Japanese and Chinese models, and under corporate land ownership as a proposed new model.

Government's Role in Economic Development and Agro-Industrial Transition of Monsoon Asia

Kuznets points out that the role of the nation-state in modern economic growth with its continuous technological and social innovations and its rapid rate of structural change is an important factor in modern economic growth, and asked whether the delay in the rise of a modern nation-state was a factor in the failure of underdeveloped countries to enter the modern growth process (Kuznets 1971: 346-347).

Abramovitz indicates that the process includes the displacement and redistribution of the population among regions, the abandonment of old industries and occupations, the qualification of workers for new and more skilled occupations and extension of education. The growth of very large-scale enterprise establishes new types of market power and alters the relations of workers and

employees. These imply a great change in the structure of families and in their roles in caring for children, the sick and the old. These and other changes alter the positions, prospects and power of established groups. Conflict and resistance are intrinsic to the growth process. To resolve such conflict and resistance in a way which preserves a large consensus for growth, yet does not impose a cost which retards growth unduly, a mechanism of conflict resolution is needed. The national sovereign state necessarily becomes the arbiter of group conflict. (Abramovitz 1981: 2)

Oshima further stresses that it is abundantly clear that the role of government in monsoon Asian development is of the utmost importance, especially during the agro-industrial transition. Governments in monsoon Asian agriculture have a greater role to play than in other regions: land is scarce, and many farmers own little or no land, so agrarian reform is needed. Rents charged to tenants and interest rates on loans tend to be high, requiring regulation. But often governments fail to intervene, fearing the landowning class. Irrigation is needed to supply water during the dry season, and drainage is needed in the wet season. (Oshima 1993: 226)

During the early stages of the agro-industrial transition, there are other functions to be performed by government. Government is crucial in the construction of modern physical infrastructure, the import and supervision of technologies, the development of human and natural resources, the mobilization and channeling of savings, and the reduction of unemployment and poverty. Moreover, traditional institutions must be modernized, and the foundations of new organizations, such as labor unions, farmers' cooperatives, industrial and commercial associations, and banks, must be laid. (Oshima 1993: 227)

Bray holds that the state has several areas in which it may invest to foster agricultural growth. The first is infrastructure: land reclamation; provision of transport facilities; and most importantly water conservancy. The second is capital including capital inputs especially fertilizers; and capital goods such as tilling, harvesting and processing machinery. The third is provision of credit facilities. (Bray 1986: 158-161)

Oshima notes that there are some who are impatient with the inefficiencies of government and want to shift to the market, which they consider the most efficient allocator of resources. But the market is only as efficient as the forces

making up the market. It took some time for the West to evolve and nurture these forces. It is well known that the (former) socialist countries are encountering difficulties in shifting from a planned to a market economy. It will take some time before market forces are developed, especially the ability of entrepreneurs to finance and market their production. Indeed, an important historical function of government in the process of development is to mold these forces so that the market becomes an efficient resource allocator. One reason for the rapid growth of East Asian economies was the efficiency of their governments. They were more effective in raising productivity, in promoting saving, in generating employment through agricultural diversification, multiple cropping, and off-farm employment, and in developing human resources. In addition, they supplied the necessary urban infrastructures such as roads and public utilities, secured political and social stability, and motivated the populace to work energetically to develop the economy. The governments of East Asia regulated the market deeply without disturbing the market unduly or weakening market forces. (Oshima 1993: 227)

Gordillo de Anda argues that markets do not function by themselves. It is naive to assume that the removal of government interventions will result in reasonable approximations of perfect markets. It does not follow that social welfare will rise as a consequence of the removal of some or all government interventions. On the contrary, the impact of structural reform and liberalization has negatively affected the poorest. The virtues of the market are exaggerated in line with the vices of the state. Markets must be managed and market failures compensated for. For development to work, people have to feel that they directly benefit; and for that to work, there has to be a *mix* of market, civic society (such as farmers' cooperatives or associations) and government. Each of these three parts needs the other parts. Such a mix could release something far more powerful than the energy of each: the synergy of "collective imagination and action" that results in sustainable development. (Gordillo de Anda 1997: 1-3, 7-8). Riddell further presents that "There exists a wide range of examples of public sector and private sector cooperation. The challenge that all nations are facing is to identify and implement solutions that respond to their own situation." (Riddell 1997: 2)

These points of view are in accordance with the variable mixed economies.

However, systematically reviewing and discussing all patterns of mixed economy in agriculture, industry, finance, trade, etc. and their interrelationship in

all countries of the West and East in their developing and developed stages are a task not permitted by the length of the thesis. Thus, Chapters 4 and 5 concentrate on the two variants of the mixed economy in agriculture in postwar monsoon Asia: the Japanese one and the Chinese one, examining whether they could overcome the last obstacle to sustainable rural development in monsoon Asia, plus a new proposed model.

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Chapter 3

Theory of Property Rights

Modern property rights theory appeared at the beginning of the 1960s. Of its many branches, this chapter can only review those most relevant to the major task of the thesis, i.e., how to consolidate and enlarge the fragmented small farms. They will be applied later into economics analysis in Chapters 4 and 5, although some brief reference also will be made in this chapter to show their relevance to the Chinese and Japanese models of rural development.

Unsurprisingly, the literature contains a range of different views and perspectives. There is no single universally accepted statement of the theory (Weitzman & Xu 1993: 5). This chapter adopts those which the author thinks appropriate and makes criticism on incorrect views, especially those in some widely-used economics textbooks and dictionary.[1]

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[1] In the literature, the terminology differs but some of the main concepts are similar. For example, the authors variously use terms such as "property rights" (Demsetz 1967: 31), "property relations" (Furubotn & Pejovich 1974: 2), "rights", "entitlements" (Alchian 1974: xiii), "ownership" (Demsetz 1988: 12), "right of ownership" (Furubotn & Pejovich 1974: 4), "ownership rights" (Demsetz 1988: 12), "ownership title" (Demsetz 1967: 33). Few explicit differences are explained clearly in the literature and there is no substantive difference in the main conceptual framework of the various authors. Therefore, in this text, when expressing a *general* concept of property rights or ownership, I will use the term "property rights", and when showing the concept of property rights to or ownership of an asset, I will use the term "ownership".

I also find that the terms "property rights (or ownership) assignments", "property rights (or ownership) system", "property rights (or ownership) structures", "property rights (or ownership) configurations", "patterns of property rights (or ownership)" (Furubotn & Pejovich 1974: 1, 3), sometimes even "property rights (or ownership)" (Demsetz 1967: 32) are used by different authors to express the same concept, i.e., property rights (or ownership) structures.

Thus, in this thesis, when presenting the concept of property rights (or ownership) structures, I will mainly use the term "property rights (or ownership) structures", but sometimes also use the term "property rights (or ownership) assignments" as it is relevant in a specific context.

I. Incentives under Private Ownership and Possession of Public Assets

Property Rights

Furubotn and Pejovich define the concept of property rights as the sanctioned behavioral relations among people that arise from the existence of goods and pertain to their use (Furubotn & Pejovich 1974: 3).

These relations, as Demsetz emphasize, convey the right to benefit or harm oneself or others. For example, harming a competitor by producing superior products may be permitted, while shooting him may not. (Demsetz 1967: 31-32). They specify the norms of behavior with respect to goods that each and every person must observe in his (her) daily interactions with other persons, or bear the cost of non-observance (Furubotn & Pejovich 1974: 3). They also specify ways in which persons may be benefitted and harmed, and, therefore, who must pay whom to modify the actions taken by persons (Demsetz 1967: 32).

Furubotn, Pejovich and Demsetz indicate the basic implications of the concept of property rights as follows.

Property rights are an instrument of society. In the world of Robinson Crusoe, they play no role. (Demsetz 1967: 31). This applies to all scarce goods and encompasses both the rights over material things (to sell my typewriter) as well as human rights (the right to vote, to publish, etc.). Here, the term "good" refers to anything that yields utility or satisfaction to a person. The prevailing property rights structure in the community is the sum of economic and social relations with respect to scarce resources in which individual members stand to each other (Furubotn & Pejovich 1974: 3).

Ownership

Furubotn and Pejovich claim that ownership of an asset is the best known of the many sub-categories of the general concept of property rights. It implies the following three elements. (Furubotn & Pejovich 1974: 4)

First, the right to use the asset (Furubotn & Pejovich 1974: 4). Especially, as Milgrom and Roberts stress, it includes the right to residual control - that is, the right to make any decisions concerning the asset's use that are not explicitly

controlled by law or assigned to another by contract (Milgrom and Roberts 1992: 289). For example, Japanese owner-peasants can decide whether or not to produce, what product and how much to produce on their own land, which are not explicitly controlled by law.

Second, the right to appropriate returns from the asset (Furubotn & Pejovich 1974: 4), or the right to refuse use of the asset to anyone who will not pay the price the owner demands. Particularly, it contains the right to residual returns - the net income an asset brings after all revenues have been collected and all debts, expenses and other contractual obligations have been paid. Thus, the owner of an asset is the residual claimant - the one who is entitled to receive any net income the asset produces. (Milgrom and Roberts 1992: 290-291)

Third, the right to change the asset's form and/or substance. This element, the right to bear the consequences from changes in the value of an asset, is the fundamental component of ownership. It implies that the owner has the legal freedom to transfer all rights (e.g., to sell a land), or some rights (e.g., to lease the land), in the asset to others at a mutually agreed-upon price. (Furubotn & Pejovich 1974: 4)

Ownership is an exclusive but not unrestricted right in the sense that it is limited only by those restrictions that are explicitly stated in the law; or, sometimes, in the customs and mores of a society (Demsetz 1967: 31). Such restrictions may range from substantial to minor. For example, on one hand, there is the serious case where an individual's ownership of an asset cannot be transferred for a price higher than the ceiling price established by the government; on the other, there is the situation where a land owner is constrained from building a fence within two feet of the property line. (Furubotn & Pejovich 1974: 4)

This statement is especially relevant to this thesis. As shown in Chapters 1 and 4, the land reform in Japan during 1946-50 restricted the acreage of private land ownership, protected tenants from eviction and controlled land rent. In China, as presented in Chapters 1 and 5, a village owns the land but cannot sell it without the state's permission.

Possession

Possession of an asset refers to the holding of an asset either by ownership control or in other ways. Three relevant features are considered here.

1. The owner also is possessor. If the owner holds the asset completely with him (her), he (she) is also its possessor. Here, ownership is also possession. For example, those Japanese small farmers who till their own land are both owners and possessors of the land.

2. The owner is not possessor. Two cases are considered here. (1) *Leasing* of land. If the owner (as lessor) leases the asset (land) to another party (as lessee), then, during the lease period, the owner is no more its possessor, nor is the possessor its owner. This is the case under the leasing of private land in Japan. (2) *Contracting* output for using land. If the owner (as contractee) contracts a complete task using the asset (land) to another party (as contractor), and the owner has the duty to provide the contractor with services, then, during the contract period, the owner is no more its possessor, nor is the possessor its owner. (There are numerous forms of contracting. Here it refers to that under the Chinese Household Responsibility System as outlined in Chapters 1 and 5. "Contracts a complete task" means to contract the whole agricultural production process, rather than a part or parts of the task, e.g., harvesting only.)

The major difference between leasing and contracting is that the lessor has no duty to provide services while the contractee has.

3. The ordinary owner is not direct possessor. There is cooperative/enterprise engaging in both Chinese and Japanese agriculture with land shares by land owners, capital shares by investors, distributing revenue among land shares, capital shares and labor contribution. Here, if there are many land owners, then possession is by the board of directors (representing all land owners, making major decisions) and managers. Some of the land owners may operate land as employees of the cooperative/enterprise, but not as land owners. In this thesis, I call such a cooperative/enterprise as a share-holding one, if land is physically withdrawable when a member quits; and a corporate-holding one, if land is physically not withdrawable. In Table 3.1, only the case of share-holding is shown.

Table 3.1 Ownership and Possession of Asset (Land)

	The owner is possessor of land	*The owner is not possessor and the possessor is not owner of land.* The owner (lessor/contractee) leases/contracts the land to another party (lessee/contractor).		*Ordinary owner is not direct possessor of land.* Cooperative/enterprise with land shares by land owners, capital shares by investors, distributing revenue among land shares, capital shares and labor contribution. Possession is by a board of directors (representing all owners, making major decisions) and managers.	
Right	Land owner is land possessor	Land owner (lessor/contractee)	Land possessor (lessee/contractor)	Land owner	Land possessor (board of directors and managers)
1. Use the asset /residual control	Yes	No	Yes	Use - no (if yes, only as employee). Residual control - yes, through board of directors	Yes
2. Get return /residual from the asset	Yes	Yes	Yes	Yes	Yes
		Fixed rent as return, without residual	Residual above fixed rent		
		In proportionate rent, return plus a part of residual	Residual above proportionate rent		
		In contracting, output in contracted quota as return, without residual	Residual above contracted quota		

(Table 3.1 continued)	*The owner is possessor of the land*	*The owner is not possessor and the possessor is not owner of land.* The owner (lessor/contractee) leases/contracts the land to another party (lessee/contractor).		*Ordinary owner is not direct possessor of land.* Cooperative/enterprise with land shares by land owners, capital shares by investors, distributing revenue among land shares, capital shares and labor contribution. Possession is by a board of directors (representing all owners, making major decisions) and managers.	
Right	Land owner is land possessor	Land owner (lessor/contractee)	Land possessor (lessee/contractor)	Land owner	Land possessor (board of directors and managers)
3. Change the form and/or substance of the asset	Yes	Change to non-farmland requires agreement of possessor;* Sale of land yes, but the ongoing lease /contract should not be affected without compensation	Change to non-farmland requires agreement of owner;* Sale of land no; Transfer of lease/contract possible; Improvement of quality yes; Destruction no;	Change to non-farmland requires agreement of possessor;* Sale of land shares yes; Quit with land from cooperative/enterprise yes	Change to non-farmland requires agreement of owner;* Sale of land no; Leasing /contracting yes; Improvement of quality yes; Destruction no;
Application	Japan	Leasing mainly in Japan, contracting chiefly in China.		Japan and China	

Notes: This table is the author's own formulation.
* Non-farmland refers to dam, road, canal, pond, etc.

Incentive and Pareto Efficiency

Milgrom and Roberts point out that the institution of ownership accompanied by secure property rights is the most common and effective institution for providing people with incentive to create, maintain and improve assets. Tying together residual returns and residual control is the key to the incentive effects of ownership. These effects are very powerful because the decision maker bears the full financial impact of his choices. (Milgrom and Roberts 1992: 288, 291)

Suppose a transaction involves several people supplying labor, physical inputs, and so on. If some of the parties involved receive fixed amounts of value specified by a contract and there is only one residual claimant, then maximizing the total value received by the residual claimant is just the same as maximizing the total value. If the residual claimant also has the residual control, then just by pursuing his own interests and maximizing his own returns, the claimant will be led to make the decisions reaching *Pareto efficiency*. Efficiency usually means not wasteful, or doing the "best" one can with available resources. An allocation of resources in the economy is Pareto efficient if there is no other productively feasible allocation which makes all individuals in the economy at least as well off, and at least one strictly better off, than they were initially (Pareto 1927. Lockwood 1987: 811).[2] When it is possible for a single individual to both have the residual control and receive the residual returns, the residual decisions made will tend to be Pareto efficient ones. For example, the owner of a car receives both the residual control and residual returns. If he exercises his right not to maintain his car, then he suffers the diminished services it provides and the reduced selling price it eventually commands. (Milgrom & Roberts 1992: 291-292). Thus, he will have incentive to maintain the car well.

In contrast, if only part of the costs or benefits of a decision accrue to the party making the decision, then that individual will find it in his personal interest to ignore some of these effects, frequently leading to inefficient decisions.

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[2] Efficiency is always defined relative to a specific set of individuals and available options - this is what "economy" means in the definition. Efficiency criteria can never be applied to resolve ethical questions about whether it is justified or worthwhile to help one person at another's expense (this point will be further discussed later). (Milgrom and Roberts 1992: 22)

Milgrom and Roberts give striking examples in the case of car hire. In the case, there is extreme difficulty in performance measurement - the virtual impossibility of establishing exactly how much the car's value has depreciated during any particular rental. For this reason, the rental company is unable to base its charges on its actual costs. Instead, it bases them on the things it can observe (such as days and hours of the rental, miles driven and obvious collision damage). Such a charge is necessarily less than perfectly sensitive to any single actual use and its effects, so careful use is not fully rewarded and rough use is not fully charged. The one who decides on how the asset is actually used - the person renting it - has residual control (for a time) but is not the residual claimant. Therefore, he will not have much incentive to do his best in caring for the car during its use. For general assets, as long as performance measurement is imperfect, a user who does not receive the residual returns is unlikely to take the value-maximizing level of care in maintaining its value and even more unlikely to do much to add to the asset's value. (Milgrom & Roberts 1992: 291-292)

As Table 3.1 shows, not only private ownership and possession of an asset, but also possession (leasing, contracting, share-holding in cooperative/enterprise) of an either public or private asset (e.g., land), may tie residual control and residual returns together, thus giving incentives to producers (as possessors) for profit-maximization to reach Pareto efficiency. In leasing, contracting and share-holding, although the possessors (lessee, contractor and cooperative/enterprise) have no ownership of the physical asset (e.g., land), they have the ownership of the enterprise which uses that asset. The appropriation of both profits as residual returns and any increment in the value of the enterprise gives incentive to the possessor. (Of course, the minimum amount of the residual returns should not be lower than the subsistence. Otherwise, the possessor would not be able to make a living, as is the case under the exploitative feudal landlord system presented in Chapter 2). Free transfer of long-leasing, contracting and shares of land in the market is a sufficient condition for the functioning of a market economy.

Relevance to Japanese and Chinese agriculture. The nine main features of the Japanese model of rural development (identified in Chapters 1 and 4) and twelve main features in the Chinese counterpart (introduced in Chapters 1 and 5) are relevant in this context. The huge incentive to efficient production by owner-

peasants and tenants after the land reform in Japan in the late 1940s and 1950s, and by peasants contracting collectively owned land in China in the late 1970s and the first half of the 1980s (feature 1 in both the Japanese and Chinese models), and experiences in share-holding agricultural cooperatives/enterprises as efforts for large-scale farming since the 1970s in Japan and 1980s in China (feature 9) are evidences for the above-discussed property rights theory. This theory also supports the mixed economy and Nuti's model of market socialism introduced in Chapter 2. It is compatible with my hypothesis raised in both Chapters 1 and 2 - the fragmented small farms as the last obstacle imposed by the monsoon in sustainable rural development of monsoon Asia may be overcome by variable mixed economies, increasingly along three main phases. *Phase 1*: sub-village individual-collective mixed economy (sub-village-wide cooperative/enterprise collective use of physically withdrawable private land shares, exercising collective-individual dual level operation of large land units, with the basic operation level at one household or at a farming unit including a number of households). *Phase 2*: village-wide individual-collective mixed economy. *Phase 3*: either large-scale farming public-individual mixed economy or corporate-individual mixed economy (collective use of either public land, or physically unwithdrawable private land shares under corporate ownership, exercising village-individual dual level operation of large land units, with the basic operation level at one household or at cooperative/enterprise including a number of households, as a third way between the centrally planned economy and free market system).

Technological Efficiency

Varian argues that a production plan is (technologically) efficient if there is no way to produce more output with the same inputs or to produce the same output with less inputs (Varian 1992: 4). This is actually a kind of Pareto efficiency. Putting parentheses around "technologically" implies that technology is more important in this respect than in the classic Pareto condition, although the role of the institutional changes is not excluded.

Static or short-run technological efficiency could be attained without changing technologies but with higher incentives and/or better division and coordination of labor through institutional changes. It could also be reached by

adopting already invented more advanced technologies which were not used before peasants gained incentives and/or achieved better division and coordination of labor.

For example, as presented in feature 1 of both the Japanese and Chinese models, the land reform and setting-up of cooperatives in Japan in the late 1940s gave huge incentives and better division and coordination of labor to peasants, and the economic reform in China in the late 1970s also highly motivated farmers. They increased production quickly with the technologies they used before, and then also adopted the existing more advanced technologies unused before.

Dynamic or long-run technological efficiency needed for achieving sustainable growth depends heavily on the technological progress embodied in construction of rural infrastructure, higher yields and multiple cropping of rice and other grains, diversified cropping and non-crop agriculture, off-farm employment, peasant migration to cities and work in towns, agricultural mechanization with small or large machinery (features 3-8 in the Japanese model and features 3-8 and 10 in Chinese one respectively), as well as regional transfer of development (feature 11 and 12 in the Chinese model), which have taken longer time (e.g., finding a higher yielding variety of rice, constructing a big dam, or educating peasants may take several years).

Institutional changes still play a critical role in this long-run process. In a high wage economy, it is only by consolidating and enlarging fragmented small farms that large machinery can be used and labor saved, so that producing more agricultural output with the same inputs or producing the same output with less inputs becomes possible. Institutional problems may inhibit the achievement of technological efficiency in this respect. It is on this (feature 9 in the Japanese and Chinese models) that the thesis focuses. The theory of technological efficiency, especially the dynamic or long-run one, is consistent with the variable mixed economies indicated in Chapter 2 and my hypothesis.

II. Achieving Pareto Efficiency according to Coase

In the light of Pareto efficiency, inefficiency means that there is an

alternative allocation of resources that would improve one party without harming any other in the economy. The existence of negative externalities which have no market, causes inefficiency. The Coase theorem provides one of the approaches to achieve Pareto efficiency with the introduction of market mechanism, so that the (future) negative externalities are either eliminated or efficiently produced, just like ordinary goods.

Externalities

Concept of externalities.

Demsetz finds that externality is an ambiguous concept (Demsetz 1967: 32). Although it seems impossible to discuss the many different definitions of it in the literature here, it is necessary to briefly review some of them.

Externalities are positive (beneficial) or negative (harmful) effects that one economic agent's consumption activity or production activity has on another's welfare (including the consumption set of a consumer, the utility function of a consumer, the production function of a producer, or the production set of a producer[3]) that are not regulated by the market system of prices (*technological externalities*) or function through the price system (*pecuniary externalities*).[4] Such an externality on the consumption set or utility function of a consumer is called *consumption externality*, and that on the production function or production set of a producer *production externality* (Varian 1992: 433).[5] For the purpose of the thesis, major attention is paid to negative externalities hereafter.

Negative technological externalities.

The typical example of negative technological externalities is pollution:

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[3] Consumption set refers to a set of possible consumption bundles. Utility function is a way of assigning a number to every possible consumption bundle such that more-preferred bundles get assigned larger numbers than less-preferred bundles. Production function shows the maximum possible output for a given level of input. Production set indicates a set of all combinations of inputs and outputs that comprise a technologically feasible way to produce. (Varian 1987: 53, 310. Varian 1992: 94)

[4] Definition transformed by the author from those by Varian (1987: 542-543. 1992: 432), Milgrom and Roberts (1992: 75), Demsetz (1967: 32) and Laffont (1987: 264). Varian, Milgrom and Roberts exclude pecuniary externality while it should be included as done by Demsetz and Laffont.

[5] But Varian's definitions exclude consumption set and production function which should be included as done here.

normally, there exists *no market* to buy and sell noise, smoke or other pollution. Suppose there are two firms. Firm 1 (say, a steel mill) produces an output which it sells in market. However, the production yields pollution on firm 2 (say, a fishery). Firm 1 takes into account the internal cost (private cost) - the cost it imposes on itself - but ignores the external cost - the cost it imposes on the other firm. (Varian 1987: 542-543, 549. Varian 1992: 433)[6]. A similar case is that a chemical dye factory pollutes water and deposits chemicals on agricultural land which uses the water for irrigation.

Pareto efficiency implies that competitive equilibrium would yield an efficient allocation of resources. His arguments were much refined and extended over the years by Barone, Lerner, Hicks, Samuelson, etc. The current version of the proposition is essentially based on the work of Arrow and Debreu who generalized and clarified the mathematics of the result. They indicate that it is in fact a two-fold proposition: an equilibrium allocation achieved by a set of competitive markets will necessarily be Pareto efficient (the First Theorem of Welfare Economics); and if all agents have convex preferences, then there will always be a set of prices such that each Pareto efficient allocation is a market equilibrium for an appropriate assignment of endowments (the Second Theorem of Welfare Economics). (Arrow 1963. Debreu 1959. Varian 1987: 495, 499-500. Lockwood 1987: 811)

"Competitive" in the context of this literature means that resources can move smoothly in response to prices (i.e., without being monopolistically or oligopolistically held with bargaining power); all firms or agents take prices as given; firms maximize profits and consumers maximize personal utility (Milgrom & Roberts 1992: 62). Under such circumstances, the sufficient conditions for the First Theorem are (1) that there are *no* externalities (because they have no market) and (2) that there are contingent markets for all commodities, i.e., markets at all present and future dates and states in all contingencies. Implicit in (2) is the assumption that all agents are equally and perfectly informed about all aspects of their environment. The reason why the first condition is sufficient (and generally,

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[6] Varian states that Firm 1 "ignores the *social costs* - the private cost plus cost that it imposes on the other firm" (Varian 1992: 433). This may be inaccurate since Firm 1 does not ignore the private cost - the internal cost, but only ignores the "cost that it imposes on the other firm" - the external cost.

necessary) is simply that externalities are in this framework products for which no markets exist, so there is no mechanism for the marginal benefits of the externality-producing activities to be equated to the marginal damages they impose on others. (Lockwood 1987: 811-812)

Internalization of negative externalities is a process of taking into account the external cost by the externality-yielding party (therefore, strictly speaking, taking into account *partial* external cost by the externality-yielding party can only be called *partial internalization* of negative externalities). If the polluting firm could do that, then Pareto efficiency would be reached. One way of internalizing externalities is for the two firms (polluting and polluted) to merge, so that social costs which now equal private costs will be computed to determine the efficient output of both products (say, steel and fish) and efficient amount of pollution. In this way, the new firm may produce less steel thus less pollution, but more fish, so that it would not be worse off. (Varian 1987: 549-550). (Other ways of internalization will be discussed later.)

Internalizing externalities is for establishing the sufficient conditions for Pareto efficiency, i.e., introducing market mechanism into the production of externalities. Before the market mechanism has been established, Pareto efficiency may not always be applicable. In the process of establishing market mechanism, the externality-yielding party may have to bear the external cost it imposes on others and thus be worse off than before [e.g., rather than merging, the steel firm may be imposed a tax equal to its external cost on the fishing firm, called Pigouvian tax (Pigou 1920), which will be discussed later].

It is necessary to note that Pareto efficiency excludes externalities because they have no market. If market mechanism is introduced into their production, Pareto efficiency does not exclude them and sets them at levels such that their social marginal benefit equates their social marginal cost. (Laffont 1987: 264)

When there are externalities, however, even if the private market economy has been introduced in, equilibria will not be in general Pareto efficient since the private decentralized optimizations of economic agents lead them to take into account only private costs through the price system (Laffont 1987: 264). Thus, it is necessary to examine negative pecuniary externalities as below.

Negative pecuniary externalities.

One example of the negative pecuniary externalities is that consumer A

affects consumer B's welfare by increasing A's consumption of whisky which leads to the increase in price (Laffont 1987: 264). Another example is that some firms decrease output of a product, resulting in its higher price.

However, according to competitive market equilibrium, prices only equate supply and demand. Therefore, pecuniary externalities do not matter. (Laffont 1987: 264). If some firms have reduced the output of a product, the resulting higher price would lead other firms to increase their production of that product until market equilibrium is reached.

But, recall that Pareto efficiency is based on the assumption that market is competitive which means that resources can move smoothly in response to prices, all firms or agents take prices as given, firms maximize profits and consumers maximize personal utility. In contrast, in many cases of reality, as well known, the market is not perfect or competitive; especially, the bargaining power of some agents plays strong role in transactions (Milgrom and Roberts 1992: 316). Under such circumstances, by affecting prices, some agents affect the welfare of other agents. Pecuniary externalities do matter for welfare economics and Pareto efficiency cannot be attained. (Laffont 1987: 264)

The relationship between technological and pecuniary externalities. For technological externalities, there exists no market; while for pecuniary externalities, the market is there, but cannot function properly. Therefore, once the market mechanism has been introduced into the production of technological externalities, if they still cannot be eliminated or efficiently produced as ordinary goods, they become pecuniary externalities. (This relationship is not pointed out in the literature reviewed.)

Not enough importance, if any, however, has been attached to pecuniary externalities in the literature reviewed. For example, in the two textbooks by Varian (1987 & 1992), the term is not used at all. In the textbook by Milgrom and Roberts, the definition for externalities is just that for technological externalities. Accordingly, only pollution is cited as an example of what externalities an incomplete and imperfect market, and bargaining power, in reality will result in. (Milgrom and Roberts 1992: 75, 316). In "The New Palgrave - A Dictionary of Economics", after mentioning pecuniary externalities in only two paragraphs, Laffont focuses on technological externalities in the following 19 paragraphs (Laffont 1987: 264-265). Since these textbooks and this dictionary are

widely used, readers, especially economics students, are misled to such a wrong conception that pecuniary externalities are not so important. Here, I would like to correct this misunderstanding.

Demsetz stresses that in a lawful society, the prohibition of voluntary negotiations makes the cost of transacting infinite (Demsetz 1967: 32). He actually means that negative technological externalities cannot be eliminated because market exchange is not permitted. His implication is that once voluntary negotiations are allowed, the cost of transacting would be abundantly less. However, he ignores that once voluntary negotiations are legalized in a lawful society, the externality-yielding party can still impose negative *pecuniary* externalities, thus making the cost of transacting infinite *as well*. Indeed, after most of the former socialist centrally planned economies have adopted a market economy, and most capitalist countries have implemented deregulation, it is negative *pecuniary* externalities which are the major negative externalities. They outweigh negative technological externalities in the current real world.

In Japanese and Chinese agriculture, for example, the absentees or part-time farmers had no incentive to maximize profits on farming due to seeking higher income from off-farm employment and/or psychological reasons.[7] In Japan, farmers had the right of neither tilling their land, nor earning rent or revenue from land shares by leasing or joining cooperative/enterprise. This had been a negative technological externality since there was a land holding ceiling before 1962 and permanent tenancy and rent control before 1970. But in these two years, they were lifted respectively. Now that it still could not be eliminated by voluntary negotiations, it became a negative pecuniary externality.

In China (before the Dual Land System was introduced), after fulfilling the quota (by either producing on the land or simply purchasing products from the market), contractors could not only stop production but also refuse to sublet their land to full-time farmers, although they were allowed to sublet. Thus starting from the beginning it was already a negative pecuniary externality.

This would raise the prices of rice as well as other agricultural products

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[7] Although the goal most commonly ascribed to firms in economic analyses is profit maximization, for the self-interested owners of a firm would seem to unanimously favor such a goal, actually, there are many cases in which owners might have other objectives (Milgrom and Roberts 1992: 40).

if cheap foreign food were not imported; but if it were imported, the food prices in the world market would rise, as already happened in the 1990s. If land were not scarce, or the idle land could be transferred easily to the full-time farmers, the latter could operate larger land and increase output, so that such pecuniary externalities could be removed and Pareto efficiency achieved.

But land is an extremely scarce good. In Japan the land was privately owned and in China the public land was contracted to households. Thus the full-time farmers could not easily get more land from the earth nor had the right to till the idle land of the others. Because the market of land transfer was not perfect or competitive, the pecuniary externalities could not be removed and Pareto efficiency not be achieved. Therefore, it is negative pecuniary externalities that have played the major role in hampering the efficient use of land and achievement of large-scale farming.

How to solve this problem? We start from the Coase theorem which provides one of the approaches.

Coase Theorem

In his theory of social cost, Coase assumes that transaction costs are zero; income effects of different distributions of wealth are neglected; and property rights are well defined. Then the output mix that results when the exchange of property rights is allowed (1) is Pareto efficient; (2) is independent of who is assigned the relevant property rights initially and (3) the (future) externalities are either eliminated or efficiently produced. (Coase 1960: 1-44. Varian 1987: 546-547. Demsetz 1967: 33. Demsetz 1988: 262). (Demsetz does not notice that the externality can be efficiently produced. None of them pay attention to the point that it is the *future* externality that is eliminated or efficiently produced, as discussed below.)

The smoking example.

Due to its simplicity and clarity, this example is preferred in the literature. Here, the reference is from Varian (1987: 543-546), but I have modified it and suggested new and potentially significant applications.

Suppose persons A and B share a room. A likes smoking but B does not. When A smokes, he imposes a (negative technological) externality on B. Now,

assume B is assigned the right to clean air, and A is given $20. If A prefers to keep $20 for other purposes without smoking, then this externality will not be produced. But A may prefer to pay B $1 for smoking one cigarette and up to $20 for a full pack of 20 cigarettes. In so doing, the externality is eliminated (internalized) by A because he has borne the social cost: the private (internal) cost - A pays to buy cigarettes, plus external cost - A's payment to B. A is better off but B is not worse off, so that Pareto efficiency is attained.

In this case, B may ask for more payment from A until he feels fully compensated, just as in free market negotiations. But in reality, wealth is always limited to a certain amount. Thus, for simplicity reason, here it is limited to $1 for one cigarette and $20 for 20 cigarettes.

B may also refuse to exchange at all, for believing that no amount of money - no matter how much - can eliminate the damaging negative externality of smoking on his lungs and life span in *physical* terms. In free market transactions, A cannot force B to exchange. But here, let us just suppose B is willing to accept up to $20 for A's smoking up to 20 cigarettes and regard the externality as eliminated in *financial* terms. (Attention is not paid by Varian on the distinction between elimination of negative externalities in physical terms and financial terms.)

Alternatively, if A is awarded the right to smoke a pack of cigarettes, and B is distributed $20. B may prefer to keep $20 and bear the externality from A's smoking. In so doing, the externality is Pareto-efficiently produced, because no one can be made better without harming the other (this case is not considered by Varian). B may also prefer to trade money with A for reducing/removing A's smoking, by paying A $1 for reducing one cigarette and up to $20 for A's no smoking at all (in a free market negotiation, A may refuse to exchange; but here we suppose A is willing to exchange). In so doing, the cost of A's externality on B is also borne by B (this seems unfair, but Pareto efficiency does not necessarily imply social justice). In this sense, *the externality is not eliminated* since it only changed its form from smoke to money. *Nor is it internalized*, because the external cost by A on B (in smoke form) was borne by B (in monetary form). But it is now Pareto-efficiently produced because B is better off while A is not worse off. The payment of B to A is a kind of *redemption fee* for B's temporary freedom from A's smoking (Varian does not note the temporary redemption fee

either, which is my concept).

If everyday B prefers to pay A up to $20 for less or no smoking, then everyday, the externality by A on B is Pareto-efficiently produced, *but, again, neither eliminated nor internalized*: it still exists, although in the form of B's daily or temporary redemption fee. If B prefers and could manage to pay A a much larger sum for A's no longer smoking in the future, the payment is a redemption fee for B's permanent freedom from A's smoking. Pareto efficiency is achieved. After the permanent redemption, new or future externalities will not be created either in smoking form or monetary form. But the permanent redemption fee is also an externality of A on B, because it simply transformed A's future externality on B in smoking form to the present externality in monetary form borne by B (again, Varian neglects the permanent redemption fee, which is also my concept).

Four kinds of negative externalities in time sequence.

The significance of the temporary and permanent redemption fees exceeds the smoking example. I call the temporary and permanent redemption fees as *redemption externalities*, which are not found in the literature reviewed.

As mentioned above, my definition of internalization of negative externalities is a process of taking into account the external cost by the externality-yielding party (and hence, strictly speaking, partial internalization of negative externalities means taking into account partial external cost by the externality-yielding party). But Demsetz defines it as a process that enables the external cost "to bear (in greater degree) on *all* interacting persons". He gives the following example. "It might be thought that a firm which uses slave labor will not recognize all the costs of its activities, since it can have its slave labor by paying subsistence wages only. This will not be true if negotiations are permitted, for the slaves can offer to the firm a payment for their freedom based on the expected return to them of being free men. The cost of slavery can thus be internalized in the calculations of the firm." (Demsetz 1967: 32)

However, Demsetz's definition is arbitrary and his explanation in this example confusing. "Internal" is relative to "external". Among "all interacting persons", someone (the externality-yielding party) has imposed an external cost on others (the externality-receiving party). Internalization should mean withdrawal of such a cost by the yielding party. If it were still borne by the receiving party

(in greater degree or not), it would remain external, which is contradictory to the term "internalization".

In general, I propose four kinds of externalities over time: present, historical, redemption (either temporary and permanent, but in this example permanent) and future externalities (I have not yet found such a division in the literature reviewed).

(1) *Present externality* is the external cost that the externality-yielding party is currently imposing on the receiving party (which, for avoiding confusion, does not include redemption externality that is actually a future externality but is turned to a present one). It may have started recently (e.g., being unable to repay a usury, a person has just fallen into the hands of the usurer) or a long time ago (e.g., a person borne to a slave family has inherited the slave status for decades). The present externality will be turned to historical externality once the yielding party has stopped imposing it on the receiving party (due to, e.g., personal redemption or social liberation).

(2) After the slaves have got freedom through redemption, the *historical externality* or external cost on the slaves before the redemption still remains with them and has been neither eliminated nor internalized by the firm (or, more appropriately, farm). But this does not mean that the historical externality could not or should not be internalized by the externality-yielding party. For example, during WWII, the Japanese troops forced numerus women of other Asian countries to be their sexual slaves. This historical externality has always remained with the "Asian comfort women" after WWII. But they have had no reason to bear it, although required to do so by the definition of Demsetz because they were "interacting persons". Thus, they have been demanding the Japanese government to compensate them (as the German government did to people in other countries). If the payment were sufficient, this historical external cost could be eliminated, internalized, fully compensated or fully borne in financial terms by the externality-yielding party. (If the payment were not sufficient, it would be partially eliminated, internalized or compensated.)

Here, one question arises: can such a historical externality like sexual slavery be eliminated? If an ordinary car has been damaged but then replaced by a new one, the historical externality may be regarded as eliminated, internalized, fully compensated or fully borne by the car damager in both physical and

financial terms. In contrast, if a person's eyes have been made blind, then no matter how much money is paid to him by the destroyer of his sight, this historical externality, *in physical terms*, can never be eliminated, internalized or fully compensated. But if a compensation payment were sufficient (obviously always limited to a certain amount), then *in financial terms* the externality might be considered as eliminated, internalized or fully compensated. Therefore, it is in financial terms (neither physical nor spiritual terms) that we may say that if the Japanese government sufficiently paid to the "Asian comfort women", this historical externality would be regarded as eliminated, internalized or fully compensated.

(3) The permanent redemption fee is also an externality (*redemption externality*), which has transformed the future slavery externality into the present monetary form, borne by the slaves rather than being eliminated or internalized by the firm/farm, although it was Pareto-efficiently produced since the slaves preferred to pay it for buying freedom. (Of course, a slave might pay a temporary redemption fee for a freedom of a short period. But here, we concentrate on permanent redemption.) Again, this does not mean that the slaves must always bear a redemption externality to get freedom. For example, the US Civil War and the Anti-Japan War liberated the southern slaves and "Asian comfort women" respectively without requiring them to pay redemption fee to their masters, although they were "interacting persons" and should have paid according to Demsetz's definition.

(4) After the slaves have paid a permanent redemption fee for future freedom, if the firm/farm wants to continue production, it will have to take into account the social costs: the internal (private) cost - the cost it imposes on itself, and external cost - the cost on the former slaves which was previously ignored but is now eliminated or internalized by the firm/farm through paying them normal wages. That is to say, *future externality* (except for that which has been turned to redemption externality and borne by the slaves) of this kind will be borne or eliminated by the firm/farm.

Bearing the historical and redemption externalities by the slaves is not internalization, nor a necessary pre-condition of internalizing the future externality by the slave-holders, although in some cases the slaves either "preferred" or had to do this. Therefore, internalization of negative externalities should be defined

as a bearing of the external cost by the externality-yielding party, rather than by "*all* interacting persons".

Similarly, for solving the pollution problem, the fishing firm could be given the right to clean water and let the steel firm pay it for its pollution, so that the negative externality is eliminated in financial terms. Alternatively, the steel firm could be given the right to pollution, and let the fishing firm pay it to produce less or no pollution, thus the negative externality is Pareto-efficiently produced. Both would reach Pareto efficiency via market exchange according to the Coase theorem. (Varian 1987: 555-556). The latter choice is not fair, but, again, Pareto efficiency does not imply social justice. Sometimes, this might even be the only efficient choice. For example, in some regions controlled by gangsters, the incompetence of police actually gives them a "right" to charge shopkeepers a regular "protection fee" or kill them. The shopkeepers "prefer" to pay a "protection fee", under which the negative externality is Pareto-efficiently produced. Similarly, an unarmed pedestrian may prefer paying to a couple of armed bandits to being slain in the night, under which the negative externality is also Pareto-efficiently produced. These two realistic examples show that despite criticism to the contrary, the Coase theorem is not always unrealistic.

Proper definition of property rights.

Varian claims that the practical problems with externalities generally arise because of poorly defined property rights. In the smoking example, if A believes that he has the right to smoke and B believes that he has the right to clean air, then who should pay whom? The negotiation is difficult. Cases where property rights are poorly defined can lead to inefficient production of externalities - which means that there would be at least one way to make one party better off while another party not worse off by changing the production of externalities.[8] If property rights are well defined, and mechanisms are in place to allow for negotiation between people, then people can trade their property rights to produce externalities in the same way that they trade rights to produce and consume

[8] Varian claims "inefficient production of externalities - which means that there would be ways to make both parties involved better off" (Varian 1987: 546). This statement seems inaccurate. Thus I modified "ways" into "at least one way" and "both parties involved better off" into "one party better off while another party not worse off".

ordinary goods. (Varian 1987: 546)[9]

Hence, for reaching Pareto efficiency, there is *Approach 1: permission for the relevant parties to exchange property rights through a political or legal process, followed by market exchange.* (Demsetz 1967: 33)

Relevance to Japanese and Chinese agriculture.

Applying Approach 1 to the problem of pecuniary externalities imposed by the Japanese absentee and part-time peasants, we may see that, as presented in Chapters 1 and 4, in 1962, the land holding ceiling was lifted, so that peasants acquired the right to buy more land (exchange between money and land). In the 1970s, protection of tenants from eviction and rent control were removed, so that landlords did not need to worry about losing leased land to tenants and could charge higher rent (exchange between rent and land use). They could also join share-holding cooperative/enterprise to earn revenue from land shares. Thus, voluntary sale, lease may, if carried out, could eliminate the negative technological externalities which existed before such market exchanges were allowed, so that Pareto efficiency could be achieved: full-time farmers and the whole society would be better off, but the absentee and part-time peasants would not be worse off. They might even be better off since, e.g., they could now earn rent through leasing or revenue from land shares through joining cooperative/enterprise.

Applying Approach 1 to the problem of negative pecuniary externalities imposed by the Chinese absentee and part-time peasants, we could see that, as shown in Chapters 1 and 5, the right to voluntarily transfer contract was already established at the beginning. In those cases where it was carried out, the absentee and part-time peasants could be discharged from fulfilling quotas, while the full-time farmers could contract more land - also an exchange. Pecuniary externalities could be eliminated and Pareto efficiency attained: full-time farmers and the whole society would be better off, but the absentee and part-time peasants would not be worse off. They might also even be better off since they could now concentrate on off-farm activities to earn higher income.

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[9] Should property rights be well defined in *all* economic activities of *all* societies? Weitzman and Xu say no because they find that the Chinese township and village enterprises as vaguely defined cooperatives have been quite successful (Weitzman & Xu 1993). But this topic is not directly related to this thesis.

III. Reaching Pareto Efficiency When the Hypotheses of the Coase Theorem Are Relaxed

Even Coase himself admits that in the real world, transaction costs are positive, and distribution of wealth has income effects. Therefore the assignment of property rights matters. None of this, however, is taken into consideration in the Coase theorem. (Coase 1960: 15-16). Therefore, Milgrom and Roberts warn that it is important to remember that the Coase theorem and its various implications depend on restrictive hypotheses regarding preferences and the ability to make transfer payments between the parties. The implications do not hold when some of the parties have very limited capital to make payments. Thus, although it would be reasonable to apply this analysis to study the terms of a contract between General Motors and Toyota, it would be a mistake to apply it uncritically, for example, to study land tenure in a developing country or the institutions of slavery in the pre-Civil War American South. (Milgrom & Roberts 1992: 39). The question of how to achieve Pareto efficiency when the hypotheses of the Coase theorem are relaxed should thus be considered.

Positive Transaction Costs

Assignment of property rights matters because transaction costs are positive. According to Coase, Furubotn, Pejovich and North, the major positive costs in transacting property rights are: (1) the costs of discovering who it is that one wishes to deal with; (2) the costs of informing the people one intends to deal with; (3) the costs of defining property rights (determining who owns what property, who holds which rights); (4) the costs of measuring property rights (assessing precisely the specific attributes of the properties to be exchanged); (5) the costs of bargaining over property rights (negotiating on what terms to make the transaction, refusing to exchange or demanding unbearable prices by the externality-yielding party and overcoming the bargaining power of the yielding party by the receiving party and society); (6) the costs of drawing up the contract for transacting property rights; (7) the costs of exchanging property rights (exercising physical transactions); and (8) the costs of policing property rights (enforcing the newly established property rights). (Coase 1960: 15. Furubotn &

Pejovich 1974: 46. North 1990: 28-33, 48-49). Each of these authors, however, has only noted part of this list. Coase does not note the costs of defining, measuring and exchanging, and Furubotn and Pejovich only mention the costs of defining, exchanging and policing. Moreover, they have neglected some important costs. Therefore, even this list is not complete. There would be (9) the costs of *organizing* transactions (sometimes even some special organizations may have to be set up to organize all or a part of the above eight steps); (10) the costs of time (all transactions cost time; for achieving the same purposes, under some property rights structures, certain transactions may either be avoided or cost less time, hence Pareto efficiency); and (11) the opportunity costs (for reaching the same purposes, under other property rights structures, certain transactions may either be unavoidable or cost more time, whose costs could otherwise be saved and used on other productive activities, hence inefficiency).

Relevance to Japanese agriculture. For example, in Japan, land consolidation under private land ownership leads to (1) the costs of discovering who it is that one wishes to deal with, e.g., finding who hold fragmented small farms in a village or district; (2) the costs of informing the people one intends to deal with, e.g., notifying all farm households that the village or local government intends to launch land consolidation; (3) the costs of defining property rights, e.g., examining the current farmland cadastral records to determine who owns which parcels; (4) the costs of measuring property rights, e.g., assessing the value of each parcel; (5) the costs of bargaining over property rights, e.g., educating public opinion and discussing the necessity of land consolidation and voting to decide whether to carry it out in the village or area concerned [this should be done after the above step (2)]; refusing to exchange or asserting too high a value for one's parcels by some land owners, which will hinder the process of land consolidation and thus incur costs to the society; and obliging them to exchange at reasonable valuation of land by the authorities, which will also tend to incur legal and possibly enforcement costs to society; (6) the costs of drawing up the contract for transacting property rights, e.g., designing and finalizing the scheme of land redistribution; (7) the costs of exchanging property rights, e.g., physically reorganizing parcels to form compact land units, removing and/or re-constructing buildings on land; and (8) costs of policing property rights, e.g., notarizing the newly established land holdings; (9) the costs of organizing transactions, e.g.,

legislation, setting up special committees at administrative levels, and their activities; (10) the costs of time, e.g., each of the above steps costs time; and (11) the opportunity costs, e.g., if agricultural land were turned to corporate ownership to be reorganized into compact form and operated under a Dual Land System or a Single Land System recommended in my Proposal 1, then most of the above costs could be saved and used on other productive activities.[10]

The importance of transaction costs can be seen from the following example. Measuring the size of transaction costs that go through the market (such as costs associated with banking, insurance, finance, wholesale, and retail trade; or, in terms of occupations, with lawyers, accountants, etc.) in the US economy, Wallis and North found that more than 45 % of national income was devoted to transaction and, moreover, that this percentage had increased from approximately 25 % a century ago (Wallis & North 1986. North 1990: 28).

Income Effects

Assignment of property rights matters also because different property rights assignments have different income effects. According to Demsetz, the income effects include three basic aspects.

First, altering the assignments of property rights changes the distribution of wealth, because under different assignments of property rights, different persons are made richer or poorer (Demsetz 1988: 15).

In the example of a chemical dye factory polluting farmland, if the dye factory is given the right to pollution, then the farm has to pay to the factory for reducing or stopping production. Thus the factory is made richer and farm poorer. If the farm is given the right to clean water, then the factory has to pay the farm for its pollution. Thus the farm is made richer and factory poorer.

Second, because each person's propensity to consume or save may be different, different distribution of wealth may result in different levels of consumption and saving. Thus, the total mix of consumption and saving in the

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[10] In a separate paper which will be published by FAO (Zhou, Jian-Ming 1998), I undertake a comparative international survey of the general methods of land consolidation under private farmland ownership, which discloses its very high transaction costs compared with the land consolidation under public land ownership and corporate land ownership.

economy must change if the distribution of wealth changes. (Demsetz 1988: 15)

In the above example, if the chemical dye factory is made richer, it may spend more. If the farm is made richer, it may save more.

Third, even if each person's propensity to consume or save were the same, because their marginal rates of substitution between goods may be different, the persons made wealthier may purchase goods in different proportion from the persons made poorer. Thus, the total mix of outputs in the economy must change if the distribution of wealth changes. As long as those who are made wealthier and those made poorer, taken as two groups, have different marginal rates of substitution, alternative distributions of wealth imply different efficient mixes of output. (Demsetz 1988: 15)

In the above example, even though the chemical dye factory and farm have the same propensity to consume or save, once the factory is made richer, it could purchase more chemical materials; once the farm is made wealthier, it could buy more agricultural inputs. Accordingly, the society would have different mixes of production of chemical materials and agricultural inputs.

Approaches in Assignment of Property Rights

Due to the positive transaction costs and income effects, assigning property rights or changing property rights structures is not negligible, but plays a major allocative function in internalizing externalities (Demsetz 1967: 34) or efficiently producing externalities so as to reach Pareto efficiency (Demsetz does not note the latter point). Hence the following Five Approaches of assigning property rights under different circumstances of positive transaction costs and income effects. Some elements of these Approaches could be found here and there in the literature. But the summarization and systemization are made by the author.

Approach 1.

If both externality-yielding and externality-receiving parties are willing to exchange their relevant property rights, and could afford their respective transaction costs and income effects, Approach 1 (as above-mentioned) could be adopted, i.e., permission for the relevant parties to exchange property rights through a political or legal process, followed by market exchange. The already

cited examples include voluntary land sale, lease, and joining cooperative/enterprise in Japan, and voluntary transfer of contracts for using public land in China.

Approach 2.

Under some circumstances, market mechanism has been introduced, but the externality-yielding party, by its stronger social, political, or economic bargaining power, may refuse to make exchange, and thus keeps imposing negative externalities on others. As Milgrom and Roberts emphasize, even if a Pareto efficient allocation of resources has been identified, it is still necessary to ensure that the parties involved play their part in bringing it about. The problem is that there will often be inefficient allocations that are better for one person or a subgroup than the target efficient allocation, and these people may be able to effect the inefficient outcome that they prefer. (Milgrom & Roberts 1992: 23). For example, slave/serf-holders could refuse to accept payment by slaves/serfs to buy their freedom and land according to the prevailing market prices.

Thus, although the market mechanism has been set up for the production of negative technological externalities, it may not function. Consequently, they turn to be pecuniary externalities. However, there are other social institutions such as the legal system, or government intervention, that can "mimic" the functioning of the market mechanism and thereby reach Pareto efficiency (Varian 1987: 543). This is consistent with the theoretical views that free market forces alone could not overcome the "vicious circle" of poverty and realize sustainable rural development.

Hence, if both the externality-yielding and receiving parties could afford the respective transaction costs and income effects, there is *Approach 2: implementation of social actions (law, tax, etc.) to oblige the externality-yielding party to exchange property rights, followed by market exchange.*

In so doing, in some cases, the externality-receiving party would have to bear a redemption fee (or redemption externality) and the historical external cost in exchange for not creating the future externalities by the yielding party. Examples would be the forced agreement of slave/serf-holders to accept full payment to redeem permanent freedom by slaves/serfs; or obligatory sale of extra land at market prices by slave/serf-holders to slaves/serfs. Here, the negative pecuniary externality is Pareto-efficiently produced by the slaves/serfs.

Moreover, Furubotn and Pejovich claim that if the existing property rights

structures are to be modified by social action to reduce or eliminate an externality, taxes must be imposed on those who will gain from the proposed legal change, and compensation paid (also as an incentive) to those who will suffer capital loss as a result of the new law. Presumably, agreement on the terms of the tax-compensation scheme can be reached through a political process, but the *basic mechanism* here is one of trade, a market process (Furubotn & Pejovich 1974: 46), although apparently not a pure one. In so doing, the negative pecuniary externality is Pareto-efficiently produced not only by the slaves/serfs, but also by other people who pay the taxes and the *government* which pays compensation to the externality-yielding party (slave/serf-holders).

Then the questions arise: Could the occupation of slaves/serfs by slave/serf-holders be justified? If not, why should such externality-yielding parties be fully compensated by the externality-receiving parties? Furubotn and Pejovich do not give reasons. But for this, a basic reason must be to keep social stability in the process of elimination of future externalities, so that the losers may not resist in a manner jeopardizing the outcome.

In other cases, there will be no capital losers after the exchange. For example, in my *Proposal 1 for Japan*, private land owners could turn land to corporate ownership, in exchange for private land shares which could earn permanent remuneration (housing land, self-sufficiency land or family plot would be owner-used, while production land shares could earn revenue from the village), be inherited or sold in financial terms in the market, while the village could physically possess land and reorganize land into compact form and contract land to full-time farmers, expert farmers or cooperative/enterprise for large-scale farming.

Approach 3.

Approach 1 is a pure free private market exchange at market prices. Approach 2 is socially enforced but also based on market exchange, sometimes even with compensation higher than market prices paid by the externality-receiving party to the yielding party as an incentive. By these approaches, both parties should bear the respective transaction costs and income effects. However, some people, especially those within the externality-receiving party, may not afford the high transaction costs and unfavorable income effects. Thus, Furubotn and Pejovich further argue that whenever the private terms of exchange fail to

account for some harmful or beneficial effects to the contractual parties or to others, the market solution will appear inconsistent with the social value of the bundle of property rights that is exchanged. Such private-social divergences tend to arise due to high transaction costs. Government intervention may be required if transaction costs are so high as to prevent private exchange. (Furubotn & Pejovich 1974: 46).

Thus, when the externality-yielding party, by bargaining power, refuses to exchange and/or demands unbearable prices, or market prices are too high for the externality-receiving party to bear, there is *Approach 3: reform of property rights structures through a political or legal process, followed by exchange at prices lower than the market levels.* In this case, only partial compensation will be paid by the externality-receiving party to the yielding party, and the latter will have to partially internalize the redemption externality, for not creating the future externality.

For example, slaves/serfs could be allowed by law to acquire freedom from the slave/serf-holders by a partial redemption fee and purchase land from them at prices lower than the market levels. During the Japanese land reform of 1946-50, the state compulsorily purchased and resold the farmlands of the feudal landlords to peasants at prices which soon became minimum due to inflation, so that the landlords were actually not fully compensated. In Italy and some other countries, private land can be bought by the authorities for public projects at prices much lower than the market levels.

Approach 4.

When the externality-yielding party, by bargaining power, refuses to exchange and/or demands unbearable prices, or market prices are too high for the externality-receiving party to afford even partial compensation to the externality-yielding party, or due to ethics reason the society regards it unfair to ask the receiving party to pay the yielding party, there is *Approach 4: reorganization of property rights structures without market exchange through a political or legal process*, i.e., the authorities award the relevant property rights to the externality-receiving party (Demsetz 1967: 33).

An example would be an obligatory merger of the polluting and polluted firms - in our example, steel and fishing firms (obliged because the steel firm may have no incentive to merge the fishing firm); or imposition on the polluting

firm of a Pigouvian tax equal to its external cost on the polluted firm and society; or compulsory payment directly by the polluting to the polluted firm - all of which would force the polluting firm to internalize the external cost. Other examples were the US Civil War and Anti-Japan War which liberated slaves and "Asian comfort women" respectively without requiring them to pay a redemption fee. A further case was distribution to peasants of extra land from feudal landlords without compensation in the Chinese land reform of 1949-53. There was also obligatory transfer of inefficiently used land from absentee and part-time peasants to full-time farmers in the Chinese Dual Land System, Leasing System, Single Land System and Corporate-Holding System since the 1980s.

Approach 5.

In Approaches 1-4, the externality-yielding party is not required to internalize its historical external cost on the externality-receiving party. This could be changed by *Approach 5: re-establishment of property rights requiring the externality-yielding party to fully or partially internalize its historical external cost on the externality-receiving party without market exchange through a political or legal process.* Again, this is mixed economy.

For example, if person A has wrecked person B's land, the court could force A to not only cease destroying B's land (eliminating the future externalities) but also cover B's expenses on restoring the land and income loss (internalizing the historical externality). After WWII, Germany had to pay the invaded countries war compensation. The Japanese government should officially do the same to the "Asian comfort women".

The above Five Approaches of assigning property rights are generalized in Table 3.2 with the example of slaves/serfs acquiring freedom from slave/serf-holders.

These approaches may be used in different combinations. For example, voluntary land consolidation (100 % agreement by land owners) uses Approach 1, compulsory consolidation (0 % consent by land owners) adopts Approach 2, while partly voluntary one is a mixture of Approaches 1 and 2.

Relevance to Japanese agriculture. In Japan, although the 1949 Land Improvement Law prescribed that agreement by 50 % of landowners representing 50 % of land acreage of the village was sufficient for carrying out land consolidation and the 1992 new policies raised it to two thirds majority, due to

Table 3.2 Approaches of Assigning Property Rights for Eliminating Negative Externalities With the Example of Slaves/Serfs Acquiring Freedom from Slave/Serf-Holders @

Approach	Right assigned to	Historical externality	Redemption externality		Future externality
			Permanent	Temporary	
1. Permission for the relevant parties to exchange property rights, followed by market exchange	EYP (slave/serf-holder) #	Borne by ERP (slave/serf)	Borne by ERP (slave/serf)		No
				Borne by ERP (slave/serf)	Borne by ERP (slave/serf)
2. Implementation of social actions to oblige the externality-yielding party to exchange property rights, followed by market exchange	EYP (slave/serf-holder)	Borne by ERP (slave/serf)	Borne by ERP (slave/serf)		No
				Borne by ERP (slave/serf)*	Borne by ERP (slave/serf)*
3. Reform of property rights structures, followed by exchange at prices lower than the market levels	EYP (slave/serf-holder), restricted to receive partial redemption	Borne by ERP (slave/serf)	Partly borne by ERP (slave/serf)		No
				Partly borne by ERP (slave/serf)*	Borne by ERP (slave/serf)*
4. Reorganization of property rights structures without market exchange	ERP (slave/serf)	Borne by ERP (slave/serf)	No - waived for ERP (slave/serf)		No
5. Re-establishment of property rights requiring the EYP to fully or partially internalize its historical external cost on the ERP without market exchange	ERP (slave/serf)	Borne by EYP fully or partly (slave/serf-holder)	No - waived for ERP (slave/serf)		No

Notes: EYP - Externality-yielding party, ERP - Externality-receiving party.
@ This table is the author's own formulation.
# Alternatively, right might be assigned to the slave/serf so that he could be waived from redemption. But under the assumption of Approach 1 that both parties could afford the transaction costs, there would be no need to do so. If he were regarded as not capable of paying it and given the right to freedom, it would become Approach 4 which takes into account transaction costs.
* If the aim of the social actions is to terminate slave/serf-holding forever, temporary redemption may not be allowed.

the efforts of officials and peasants in most cases 100 % consent was attained before starting it, hence a mixture of Approaches 1 and 2.

In some cases, the externality-receiving party may not be able to afford the positive transaction costs and unfavorable income effect. Thus, the government may have to bear some and even a major part of the transaction costs. For example, in the US Civil War, to force the southern slave-holders to emancipate slaves, the government and society bore huge and bloody bargaining costs to overcome the bargaining power of the slave-holders. The same argument holds for the Anti-Japan War to liberate the "Asian comfort women" and japanese occupied countries.

Even in a purely or primarily private market exchange (as in Approaches 1 and 2 respectively) in which the externality-yielding and receiving parties are supposed to bear the respective transaction costs, the government should also financially help the receiving party. For example, the government could give subsidies and long-term credits to slaves/serfs to buy extra land from the slave/serf-holders, so as to facilitate the process.

These Five Approaches and the government sharing of transaction costs are in accordance with the thesis that free market forces alone cannot realize sustainable rural development in monsoon Asia and that variable mixed economy outcomes are needed.

Private, Public or Corporate Land Ownership? A Transaction Costs Approach

What is the major factor that determines which of the aforementioned approaches of assigning property rights should be used? The above analysis has shown that it is the transaction costs. (Of course, transaction costs reflect income effects. The more the income of a party is affected, the more strongly it will resist the exchange of relevant property rights or the more compensation it will demand for such an exchange. Keeping this in mind, the discussion can focus on transaction costs.)

Originally, Coase finds that it is the transaction costs which determine whether a product should be produced by a firm or procured through market transactions. Coase stresses that within the firm, individual *bargains* between the

various cooperating factors of production are *eliminated* and that for a market transaction is substituted an administrative decision by an "entrepreneur" who directs resources with authority. It does not follow that the administrative costs of organizing a transaction through a firm are inevitably less than the costs of the market transaction which are superseded. But where contracts are peculiarly difficult to draw up and an attempt to describe what the parties have agreed to do or not to do (e.g., the amount and kind of a smell or noise that they may make or will not make) would necessitate a lengthy and highly involved document, and where, as is probable, a long-term contract would be desirable, a firm could be a solution to deal with the problem of harmful effects of individual bargains among market transacting parties. This solution would be adopted whenever the administrative costs of the firm were less than the costs of the market transactions that it supersedes, and the gains which would result from the rearrangement of activities greater than the firms' costs of organizing them. (Coase 1937: 392-393. Coase 1960: 16-17)

Coase further indicates that transaction costs also determine whether a firm should become larger or smaller. A firm becomes larger as additional transactions (which could be exchange transactions coordinated through market price mechanism) are organized by the entrepreneur and becomes smaller as he abandons the organization of such transactions. A firm will tend to be larger (1) the less the costs of organizing and the slower these costs rise with an increase in the transactions organized; (2) the less likely the entrepreneur is to make mistakes and the smaller the increase in mistakes with an increase in the transactions organized; and (3) the greater the lowering (or the less the rise) in the supply price of factors of production to firms of larger size. (Coase 1937: 393, 396-397)

Relevance to monsoon Asia agriculture. Using the Coase transaction costs approach, I find that by comparing the transaction costs incurred in land consolidation and expansion to overcome the fragmented small farms as the last obstacle imposed by the monsoon under private and public land ownership, the answers to the following two questions may be given: 1. Should rural land in monsoon Asia be privately, publicly or corporately owned? 2. If it should be publicly or corporately owned, then in Japan and other rice-based economies already under private land ownership, should rural land be turned to public or

corporate ownership?

Concerning question 1, section I of this chapter already pointed out that not only private ownership and possession of an asset, but also possession (leasing, contracting, share-holding in cooperative/enterprise) of an either public or private asset (e.g., land), may tie residual control and residual returns together, thus giving incentives to producers (possessors) for profit-maximization to reach Pareto efficiency. In fact, features 1-8 in the Japanese and Chinese models of rural development show that both private and public land ownership could succeed in overcoming most obstacles imposed by the monsoon in rural development of monsoon Asia (one may argue that public land ownership may have a certain superiority over private one even in this process in such a big economy like China, but this is not the topic of this thesis). However, in overcoming the last obstacle - the fragmented small farms - a sharp difference has been exhibited between private and public land ownership.

Japan established the family fragmented small farms under individual land ownership during 1946-50, and China popularized them upon village land ownership during 1978-82. As much agricultural labor force transferred to off-farm activities, part-time farming and absenteeism happened in Japan at the end of the 1950s and in (some areas of) China at the beginning, and especially in the middle, of the 1980s. The part-time farmers and absentees became rich with high off-farm income, while the remaining full-time farmers found it difficult to be viable in a high wage economy. Thus, the part-time farmers and absentees should let the full-time farmers use their land, so that from both a resource optimization and social justice point of view, the full-time farmers could enlarge farm size, gain returns to scale and increase their incomes. From a national economy point of view, waste of resources of land, labor, management, capital, machinery, etc. could be avoided, sufficient rice and other agricultural products produced, their prices lowered, stabilized or not much raised, and government subsidies reduced or saved. From an international economy view point, no or less import of grain (rice) would lead to no or less increase of grain prices which would benefit other grain-importing countries, especially the poor ones.

However, as already briefly mentioned in Chapter 1, and to be elaborated in Chapters 4 and 5 respectively, the progress of consolidation and expansion of the fragmented small farms in Japan and China has been conspicuously different.

In Japan, the process started in 1960 and was pushed by the central government. But, after more than three and a half decades, little progress has been achieved, and effective ways feasible to Japan have not yet been found or confirmed (meanwhile there have been costs of government subsidies, costs of time, and opportunity costs - hence the possible value of my Proposal 1 for Japan in Chapter 4). In China, in contrast, mainly due to the efforts of grass-roots officials and peasants themselves, as early as at the beginning of the 1980s, the Dual Land System, then also Leasing System, Single Land System and Corporate-Holding System were already invented. Of course, since China is so large, the progress of land consolidation and expansion has been gradual and uneven especially in the Central and Western parts, where off-farm activities are not yet developed. But at least suitable ways have been found and successful when properly implemented. There are various causes (also in non-agricultural sectors but related to agriculture) which have contributed to the increase of prices and import of grains. But this thesis focuses on the fragmented small farms issue.

So, why have land consolidation and expansion been so difficult in Japan? The fundamental reason is that *private land ownership incurs higher transaction costs chiefly because private land owners exert a strong bargaining power from ownership*. They can refuse to sell or lease their inefficiently-used dispersed parcels or join cooperative/enterprise. For carrying out land consolidation, the governments and villages have made enormous efforts. The process led to high transaction costs mainly owing to individual bargains. After consolidation, owners still resist land expansion in forms of leasing or joining cooperative/enterprise, which again requires great endeavor by governments and villages to resolve, if resolvable at all. The experience of Taiwan is similar. Expansion through individual lease may lead to new fragmentation since the compact land units of the lessor and lessee may not be contiguous. Termination of lease may reduce farm size again. A cooperative/enterprise with private land physically withdrawable is not a typical "firm" in which individual bargains are eliminated and everybody follows the authority of the entrepreneur as Coase supposes, but a special "firm" composed by individual land owners with strong bargaining power. Due to various problems within a cooperative/enterprise, rather than settling them within the "firm" which may also incur high transaction costs to them, some members may choose to use their right to quit so as to operate land individually

or form another cooperative/enterprise which may re-fragmentize the joined land and would certainly reduce the farm size.

In comparison, the major reason why China could achieve much smoother land consolidation and expansion is that *public land ownership leads to lower transaction costs mainly because private land users did not have strong bargaining power.* The village as the land owner could behave like a real "firm" to reduce/eliminate individual bargains between the various cooperating factors of production. Under the (standard) Dual Land System, a self-sufficiency land was given to all households including those of the part-time farmers and absentees as a (back-up) basic social welfare, but responsibility land was contracted only to the expert farmers for production for the state and market. Land was not only consolidated, since both these two types of land could be reorganized into compact form, but also enlarged because each of the remaining expert farmers could now contract larger land. Once the off-farm jobs of the part-time farmers and absentees have been secured, then even their self-sufficiency land could be given to the expert farmers whose farm size was thus further enlarged under such a Single Land System. Under the Corporate-Holding System, households gave their contracted land back to village which re-contracted land in compact form to full-time farmers or expert farmers and paid households dividends. Cooperative/enterprise could also be formed among full-time or expert farmers, even together with urban industrial and foreign companies which could introduce investment, advance technology and widen domestic and international markets. The revenue could be distributed among land shares of the village, capital shares of the internal and external investors, and internal and external wage laborers.

Of course, there may also be problems with public land ownership. In China, under the initial Equal Land System (each household contracted equal dispersed parcels in terms of quality and quantity according to its population for both self-consumption *and* the state and market). Those households which have increased their family size could be given additional land which had to be taken away from the village reserved land (if any) or from other households, thus violating contracts. This method, although may not be opposed by villagers on equality grounds, would discourage long-term land improvement by the contractors and encourage a higher birth rate. The Dual Land on Account System provided a solution to such frequent land transfers: as family size becomes larger

(smaller), the ratio of the self-sufficiency land to responsibility land of the household would be increased (reduced), while the whole land of the household is not changed.

Village officials as the "entrepreneur" of the "firm" may also improperly use their directing authority under the Dual Land System. For example, some officials were so eager to expand farm size that they contracted the responsibility land only to the expert farmers, making the less skilled full-time farmers who could not yet find off-farm jobs subsist on self-sufficiency land. One case was reported that in 1993 the leader of a village selected expert farmers not via bidding, hence corruption could be involved (see Chapter 5). But because the village officials are only representatives of the public land but not land owners, their "bargaining" power, although stronger than that of the ordinary villagers, is also limited: peasants could appeal to the media and the government or sue them in the courts. Some officials of the lower level governments may be involved in corruption or bureaucracy as well, but they are also supervised by the higher governments which oblige them to eradicate rural poverty and promote development as the means of keeping their posts and gaining promotion. Therefore, they have incentives to correct the wrong doings of the village officials. Although not surprisingly corruption can not be underestimated in the young market economy of China just as in many other developing countries, it should not be overestimated either, for the corruption anyway has been combated to a degree that has permitted world-widely recognized continuing buoyant economic growth. As the market economy and judiciary system become more mature, it may be more effectively controlled and the legal rights of peasants more soundly protected.

For Japan, my Proposal 1 recommends the collective use of physically unwithdrawable private land shares under *corporate* ownership, in which private shares for housing land, self-sufficiency land or family plot would be owner-used, while shares for production land could earn permanent revenue from the village. Shares could be inherited and sold in financial terms in the market. But share-holders could not withdraw land physically or claim financial reimbursement from the village. The village *physically* possesses land and could reorganize and operate land in a Dual Land or Single Land System. Under such a system, the village - as entrepreneur - could reduce or remove individual bargains just as in

a real "firm", as under public land ownership.

Therefore, my answer to question 1 is that, according to Coase's transaction costs approach, granted that transaction costs incurred in land consolidation and expansion for overcoming the fragmented small farms as the last obstacle imposed by the monsoon are much higher under private land ownership than under either public or corporate land ownership, rural land in monsoon Asia should be either publicly or corporately owned (managed at village level).

Regarding question 2, if rural land in monsoon Asia should be publicly or corporately owned, then in Japan and other rice-based economies already under private land ownership, should rural land be turned to public or corporate ownership? The answer again depends on the transaction costs involved. Rural land may be turned to public ownership (state, regional or village collectives) with or without compensation and operated at village level in either a Dual Land or Single Land System. In the contemporary era, facing increasing land prices and global wave of privatization, under the scheme with compensation, the public institutions may not be able to afford to pay (high exchange costs), while private land owners may not wish to sell (strong bargaining power). Under the scheme without compensation, owners may not agree either (also mighty bargaining power). In contrast, in turning land to corporate ownership as mentioned above, it is not necessary for villages to buy land while private land share-holders could get permanent remuneration. This would incur much lower transaction costs and be more feasible. Hence the answer to question 2 is that, in Japan and other rice-based economies already under private land ownership, rural land should be turned to corporate ownership.

IV. The Evolution of Property Rights Structures

The above section has shown that in order to eliminate (internalize) or efficiently produce externalities, the property rights structures may have to be changed. According to both Furubotn and Pejovich and also to common sense, at any given moment, there is a legally sanctioned structure of property rights in force (Furubotn & Pejovich 1974: 46). This section will first discuss *when* to

change the existing property rights structures so as to eliminate (internalize) or efficiently produce (mainly negative) externalities. This reflects the views of Demsetz, Furubotn and Pejovich (however, they have only mentioned internalizing externalities and have no concept of efficiently producing externalities which I have introduced). I then also consider the general methods of *how* to alter the existing property rights structures.

Timing of Changing Existing Property Rights Structures

Demsetz claims that every cost and benefit associated with social interdependencies is a potential externality. One condition is necessary to make a potential externality a real one: the cost of a transaction in the property rights between the parties concerned must exceed the gains from internalization (Demsetz 1967: 32) or efficiently production of externality.

Furubotn and Pejovich argue that there is no basis for believing that all existing externalities should be corrected. Only when the gains of correction exceed its costs, should the existing externalities be internalized (Furubotn & Pejovich 1974: 46) or efficiently produced.

Therefore, the evolution, adjustment or change of property rights structures, can be best understood by their association with the emergence of new or different beneficial and harmful externalities.[11] Changes in knowledge and innovation result in changes in production functions, market values, and aspirations. New techniques, new ways of doing the same things, and doing new things - all invoke either harmful or beneficial (or both) externalities to which the society has not been accustomed. The property rights structures evolve in response to the desires of the interacting persons to internalize or efficiently produce externalities for adjustment to new benefit-cost possibilities when the gains of internalization or efficient production become larger than its cost. (Demsetz 1967: 34)

Demsetz cites Leacock's following finding as an example (Leacock 1954).

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[11] Demsetz states that "the *emergence* of property rights can be best understood by their association with the emergence of new or different beneficial and harmful externalities" (Demsetz 1967: 34) as if there existed *no* property rights before the latter emergence. Therefore, I have amended "the *emergence* of property rights" into "*evolution, adjustment or change* of property rights".

Primarily, in the American Indians, the land was commonly owned. Hunting was basically for the family's need of food and a few furs and could be carried out freely. Under this ownership structure of land, overly intensive hunting exerted external costs on the subsequent hunters. Thus it was in no person's interest to invest in increasing or maintaining the stock of game. But people did not care much about these external costs, because the value of furs was so low that there was no need to husband fur-bearing animals. (Demsetz 1967: 35)

Following the advent of the fur trade at the beginning of the 18th century, the value of furs increased considerably, so the scale of hunting rose sharply. Thus the Indians established private ownership of land so that each group of families could make hunting and husband fur-bearing animals in their private territory. They did this gradually, from the first step - temporary allocation of hunting territories, to the second - seasonal allotment, and by the middle of the century the third - permanent distribution. Under the new ownership structure, people could no more hunt freely except on their own land (internalization of negative externalities). Nevertheless, a starving Indian could kill and eat another's beaver if he left the fur and tail (efficient production of negative externalities). (Demsetz 1967: 35-36)

The principle that associates the changes of property rights structures with the emergence of new, and reevaluation of old, harmful and beneficial externalities suggests in this example that the fur trade made it economic to encourage the husbanding of fur-bearing animals. Husbanding requires the ability to prevent poaching and this, in turn, suggests that changes in the ownership structure in hunting land would take place (Demsetz 1967: 36), hence a new legal framework for respect and enforcement of such rights.

Thus, we can see the following trend: (1) the development of production, technology and market, which induces (2) new benefit-cost possibilities, which in turn shows (3) gains of internalization (or efficient production) of negative externalities that exceed its costs, which subsequently raises (4) the need for internalization (or efficient production) of negative externalities, which finally requires (5) a change of the existing property rights structures and (6) a new institutional and legal framework for enforcement.

Relevance to Japanese and Chinese agriculture. The fragmented small farms were more advantageous than disadvantageous for the mono-culture of rice

in the low wage economy of Japan and China. Large-scale farming was economically not suitable. The steam-powered large agricultural machinery reflecting the technologies of the First Industrial Revolution was technically not workable, and the electricity/gas-driven large machinery representing the technologies of the Second Industrial Revolution was technically feasible but economically not proper, as indicated in Chapters 2 and 4. However, as diversified cropping, non-crop agriculture and off-farm employment developed, wages rose. The agricultural labor force diminished. Thus large-scale farming with the electricity/gas-driven large machinery became profitable. The construction of rural infrastructure especially irrigation strengthened the ability of peasants to resist natural disasters. Therefore the fragmented small farms became more disadvantageous than advantageous. In turn this promoted the case for large-scale farming and land tenure reform in these two countries.

General Methods of Changing Existing Property Rights Structures

There are two general methods in the evolution, adjustment or change of property rights structures.

The first general method is to make *gradual* changes in social mores and common law precedents. At each step of the adjustment process, it is unlikely that externalities per se are consciously related to the issue being resolved. The moral, practical and legal experiments may be hit-and-miss procedures to some extent but in a society that weights the achievement of efficiency heavily, their viability in the long run will depend on how well they modify behavior to accommodate to the externalities associated with important changes in technology or market values. (Demsetz 1967: 34)

The second general method is to make a *conscious* collective endeavor (Demsetz 1967: 34), such as a major reform or revolution at a certain stage of the gradual changes in the first general method.

The Five Approaches outlined so far are actually *specific* methods of assigning property rights, and could be either moral and legal experiments in the first general method or conscious collective endeavor in the second.

In the above American Indian example, the temporary allotment of private hunting territories was a change in social mores and common law precedents,

while the permanent distribution was a conscious collective endeavor. It used Approach 4 - reorganization of property rights structures without market exchange. Rights were directly assigned to households, historical externality was not repaid, redemption externality was waived, but future externality was internalized.

The US Civil War, as a conscious collective endeavor, was at least in part the result of change in moral attitudes - slave-holding was gradually and increasingly regarded as immoral.

Relevance to Chinese and Japanese agriculture. Resolving the fragmented small farms problem in the high wage economy in China and Japan was also a process combining these two general methods: the society realized fragmentation was no more acceptable, then the local experiments in seeking solutions, and finally the conscious collective endeavor - the establishment of the Dual Land System, Single Land System and Corporate-Holding System, as happened in China during the 1980s. In Japan, as early as since 1960, the society has already made experiments for achieving large-scale farming but did not succeed much. This shows that the first general method is not sufficient and the second is necessary. Hence my Proposal 1 for land consolidation and expansion as conscious collective endeavors in Japan.

The timing and general methods of changing the existing property rights structures examined in this section are also consistent with the theory of dynamic efficiency discussed in the first section and that of variable mixed economies reviewed in Chapter 2 as well as my hypothesis.

V. Relevant Concepts of Private Ownership

Private ownership may be divided into slave-holder ownership, feudal ownership (including feudal serf-holder ownership and feudal landlord ownership as explained in Chapter 2), individual ownership and capitalist ownership. For the purpose of the thesis, it may be necessary to discuss the relationship between the individual ownership and capitalist ownership.

Concept of Capitalist Ownership

Capitalist ownership or capitalist private ownership (often just called private ownership in the reform period in China so as to avoid sensitive political problems) has both qualitative and quantitative dimensions, both of which were appreciated by Marx.

In *qualitative dimension*, it includes *two basic factors*: 1. private ownership of the means of production, and 2. employment of wage laborers.

In *quantitative dimension*, a certain minimum amount of money or of exchange-value must be pre-supposed in the hands of the individual possessor of money or commodities, in order that the number of laborers simultaneously employed by him the whole year through, day in, day out, and consequently, the amount of surplus-value produced, might suffice *three conditions* so that he can become a capitalist: (1) to liberate him from manual labor, (2) to enable him to live better than an ordinary laborer (say, twice as well as the latter) and (3) to increase the production by turning a part (say, half) of the surplus-value produced into capital. (Marx 1887: 291-292, 312)

In qualitative terms, factors 1 and 2 are related each other. If someone owns the means of production but does not employ wage laborers, then he cannot earn surplus-value, so that it is not a capitalist private ownership. If someone employs wage laborers but does not own means of production, so that his wage laborers can work upon nothing and produce no surplus-value, this is not a capitalist private ownership either. Nevertheless, such a situation should be noted: *private possession*, without ownership, of the (public or private) means of production (through leasing, contracting, etc.) plus employment of wage labor can also extract surplus-value, and thus is also capitalist behavior. In practice, however, capitalist private possession without ownership is put under the general title of capitalist private ownership, because the latter is more typical.

In quantitative terms, the three conditions form a *direct criterion* to judge if a person is a capitalist or not. However, there are also *two alternative indirect criteria*.

Marx supposes that (at his time) eight working-hours a day are sufficient for the reproduction of the means of subsistence for an ordinary laborer, and a capitalist needs to employ eight laborers simultaneously, each working for 12

hours each day, or totally 96 hours each day. Among them, 64 hours are for the reproduction of their means of subsistence (i.e., eight hours for each of the eight laborers); 32 hours for the surplus-value, in which, 16 hours for the means of subsistence of himself (i.e., he can live twice as well as an ordinary laborer), and 16 hours for the increase of his production (i.e., he can turn half of the surplus-value produced into capital). (Marx 1887: 291-292)

Thus, not every sum of money, or of value, is at pleasure transformable into capital. In order to meet the three conditions, a minimum amount of money should be held as capital which should include variable capital to pay for 64 working-hours each day for the reproduction of the means of subsistence of eight ordinary laborers, and constant capital to buy means of production sufficient for 96 working hours each day. (Marx 1887: 291-292)

Hence, there come two alternative indirect criteria to define a capitalist: 1. he owns such a minimum amount of money as capital, or 2. he employs a certain number of wage laborers, so that he can meet the three conditions.

Concerning criterion 1, in order to metamorphose himself into a capitalist, the minimum of the sum of value that the individual possessor of money or commodities must command, changes with the different stages of development of capitalist production, according to their special and technical conditions. (Marx 1887: 293)

Concerning criterion 2, Marx says, the value of labor-power is the value of the means of subsistence necessary for the maintenance, continuation and development of this special article. Particularly, in contradistinction to the case of other commodities, there enters into the determination of the value of labor-power a historical and moral element. Nevertheless, in a given country, at a given period, the average quantity of the means of subsistence necessary for the laborer is practically known. (Marx 1887: 167-168)

Relevance to Chinese agriculture. In China, until 1956, criterion 1 was adopted in industry and commerce: an industrial capitalist had to own 3,000 Yuan and a commercial capitalist 2,000 Yuan [Huang, Qiang-Hua 1980 (a): 99. Huang, Qiang-Hua 1980 (b)]. Criterion 2 was adopted in handicrafts and agriculture: in handicrafts, a capitalist must employ at least four wage laborers (Bo, Yi-Bo 1991: 439); in agriculture, as long as a person attended labor and hired one laborer, he was classified as rich peasant (Huang, Xi-Yuan 1986: 150) or an agricultural

capitalist (more properly, quasi-capitalist since he also labored). This was mainly because capitalism in handicrafts and agriculture was much weaker than in industry and commerce, so that employment of even less than eight laborers was still regarded as capitalist.

In China's present economic reform, capitalist ownership has been allowed (although called private ownership). Due to inflation, criterion 1 has not been adopted into law. Although some researchers use it, there is no consensus on the minimum requisite to define a capitalist. Instead, criterion 2 has been taken into law.

However, in present China, how many working-hours a day are sufficient for the reproduction of the means of subsistence for an ordinary laborer? And, therefore, how many wage laborers has one to employ simultaneously so as to become a capitalist? Rather than "practically known", there is no consensus, because no one can convince others of his calculation. Therefore, the readiest benchmark in China was that put forward by Marx over a century ago: eight wage laborers to be employed simultaneously. In the event, this was stipulated in "Temporary Regulations on Private Enterprises of the People's Republic of China" by the State Council and enforced on Jul. 1, 1988 (SC 1988: 17).

The management activity by a capitalist is regarded as exploitative (Marx 1887: 292. Xu, He 1973: 92). Thus, as long as one employs eight wage laborers, he is regarded as a capitalist, no matter whether he himself is the manager or he hires a manager. However, the management activity by a manager who is not a capitalist but hired by a capitalist is regarded as labor.

Concept of Individual Ownership

Individual ownership or non-capitalist individual ownership (often just called individual ownership in China) refers to such an ownership whereby a person (or persons) individually or privately owns the means of production and employs *no* wage laborer - type 1, in which there is no capitalist factor, or employs *less than eight* wage laborers - type 2, in which the difference between such an employer and a capitalist is the quantity of the wage laborers employed and the means of production owned sufficient for the use of the wage laborers. Because quantitatively he has possessed some, but not enough, capitalist factors,

qualitatively he is not yet a capitalist but still belongs to the laboring class. However, citing Hegel's "Logic", Marx argues, merely quantitative differences beyond a certain point pass into qualitative changes: once the wage laborers he employs and the means of production he owns have become enough for him to meet the three conditions, he becomes a capitalist. Thus, Marx calls such a person "small master" - a hybrid between capitalist and laborer. (Marx 1887: 292). In China, such a person (in either type 1 or 2) is called "Xiao Ye Zhu" which means "small proprietor" or "petty proprietor". I call a person employing one to seven wage laborers quasi-capitalist.

Individual ownership has existed in all the slave, feudal, capitalist, and socialist societies (in China during 1956-78 only type 1 was allowed). The central point in the individual ownership is that the owner of the means of production does not (in type 1), or cannot yet (in type 2), live upon the surplus-value of the wage laborers he hires.

In other rice-based economies of monsoon Asia, hiring how many wage laborers simultaneously could be regarded as capitalist? Apparently, there is no consensus. Therefore, in this thesis, I use the term "*capitalistic*" to refer to either capitalist or quasi-capitalist or both.

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Part 2

Comparative Practical Studies

Chapter 4

The Japanese Model versus the Last Obstacle

I. The Significance of the Japanese Model

The Japanese model of rural development started in 1946[1]. It combines nine major features or stages[2].

1. *Institutional changes for an individual-cooperative mixed economy*:

(1) The land reform during 1946-50 (Hayami & Yamada 1991: 83) was imposed by the General Headquarters of the Supreme Commander for the Allied Powers. The government compulsorily purchased the farmlands of resident landlords over 1 ha and those of absentee landlords, and resold them to peasants for individual ownership, at prices 40 times the annual rent in kind in lowland paddy fields and 48 times in upland fields, the rents being evaluated by the commodity prices of Nov. 1945, which became negligible due to rapid inflation in 1945-49. The government also protected tenants from eviction, set land rents at very low levels; and imposed a 3 ha ceiling on land holding in order to prevent the revival of landlordism through repurchasing (Hayami 1988: 45. Hayami & Yamada 1991: 84-85. Rothacher 1989: 16-17)[3]. This gave huge incentives for peasants to increase output.

In the land reform, farmlands were generally sold to the former tenants who already possessed, and thus were familiar with, them. This was conducive to keep production order, but also maintained the fragmentation of small farms which had existed before (as presented in Chapter 2). On average, the farm size

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[1] The Meiji era (1868-1912) already carried out some land reform on the feudal landlord ownership. Technological progress and rural development had been made even in the Tokugawa period (1600-1868) and continued since then. (Smith 1966. Francks 1984). They all exerted important impacts on the postwar progress. But due to the length limit, this chapter has to concentrate on the postwar era.

[2] Summarized by the author from Oshima 1987: 60-65 and others indicated below. Oshima, however, does not note fragmentation.

[3] The farm size and fragmentation data in this chapter exclude those of Hokkaido which is outside the monsoon region and has much larger farm size and fewer fragmented parcels.

was 0.8-1 ha, number of parcels per farm 10-20, parcel size 0.06 ha, and the total one-way distance to parcels about 4 km (Hyodo 1956: 558) - also see Table 4.2.

(2) The setting-up of national rural cooperatives left the direct production process to the individual farms, but *collectivized* forward linkage, backward linkage and finance. In forward linkage, farm machinery, chemical fertilizers, agricultural chemicals, market information and seeds were supplied, and technical guidance given, via them. In backward linkage, farm produce, marine products, forestry goods, etc. could only be sold through the agricultural, fishery, forestry cooperatives respectively, as they held ties with the consumer markets. Rural financing was provided for forward linkage, the direct production process, and backward linkage. (Kojima 1988: 725-726)

In particular, the national rural cooperatives supplied superior seeds, semen and seedlings for improving productivity and increasing value added. To raise the quality of farm produce and livestock, establish uniform standards and win markets, the cooperatives designated certain species for cultivation by individual farms, distributed manuals for farms to follow, and eliminated sub-standard farm produce found at the grading sites before shipment. Farms which failed to follow the policies of the cooperatives could not operate successfully. Thus, although being mainly service cooperatives, they were extremely powerful. Individual farms had almost no self-management rights in these aspects at all. In other words, with the exception of the private land ownership, Japanese agriculture was organized more "socialistically" than the Chinese counterpart after the dismembering of the people's communes. (Kojima 1988: 725-726)

However, because the individual farming units were based on the private land ownership and controlled the direct production process, they also held the power of producing less or not producing at all. It was this, plus the formidable demand for labor from rural areas by industry, that contributed to the later part-time farming and absenteeism.

I summarize this form of mixed economy as an *individual-cooperative mixed economy.*

2. *Government policies supporting rice production and rural development* included rice self-sufficiency, rice price support, farm credit and subsidies, technological research and extension services, rice import protection during 1961-93, and policies supporting features 1 above and 3-8 below.

Besides institutional changes, technological progress also contributed to economic growth and rural development, which was embodied in features 3-8. Five steps (3-7 below) were taken for reaching full employment in rural areas:

3. ***Construction of rural infrastructure*** - mainly irrigation, land improvement, transportation, communication, electrification, education - established the technical basis for further rural development.

4. ***Higher yields and multiple cropping of rice and other grains*** (much of this was made possible by high-yielding varieties and fertilizers) raised both land and labor productivity and released labor from grain culture.

5. ***Diversified cropping and non-crop agriculture*** increased peasants' income, changed agricultural structures, and necessitated the establishment of rural enterprises for processing, transporting and marketing products of crops, livestock, fishery and forestry.

6. ***Off-farm employment*** offered peasants jobs in both urban and rural enterprises, further raised peasants' income, changed rural structures, and promoted urbanization.

7. ***Peasant migration to cities and work in towns*** was mainly by able-bodied males, leaving the aged and women in agriculture.

As peasants could get jobs also in the dry half year, full employment was achieved and wages rose. Hence a post-full employment step:

8. ***Agricultural mechanization with small machinery***. Chapter 2 pointed out that the steam-driven machines of the First Industrial Revolution of the West in the 18th/19th century, were not suitable to the tiny paddy farms of monsoon Asia. But the electric/gas-powered machines of the Second Industrial Revolution developed since the early 20th century were due to their size, cheapness, efficiency, and the ease to connect to electricity. The gas-driven internal combustion engines could be inserted into small cultivators and used to run the small harvesters of Asian farms. (Oshima 1984: 44. Oshima 1993: 4-5).

As full employment was approached and reached, the widespread use of power cultivators, threshers, sprayers, pumps, weeders, driers, and motorized transport saved farm work. As the young people left for urban jobs, even the most labor-intensive operations of monsoon paddy farming, transplanting and reaping, began to be mechanized. Mechanical transplanters and reapers released a large number of workers at the busiest time of monsoon rice growing, so that the labor

force on the farms began to shrink sharply without reducing output, another landmark event in monsoon Asia.

In 1960, rice self-sufficiency was achieved, per capita product raised, equity in income distribution reached, poverty eradicated, the first transition (from agriculture to industry) completed, and shortage of labor appeared. (JSY 1993/94: 272. ESJ 1960-61: 70. YLS 1963: 38-39. Oshima 1987: 115. Oshima 1993: 112, 125). These eight features continued to function beyond 1960. The second transition (industry to services) was concluded in 1974 (FEA 1975-76: 824). Except for rice import protection in 2 above, they are significant for other economies. At this high stage of rural development, all the major obstacles imposed by the monsoon have been overcome except for **9. *persistence of the fragmented small farms*** (Kristof 1996: 4) which will be analyzed later.

Theoretical Discussion[4]

The success of the Japanese model of rural development in features 1-8 is consistent with the theory of the long-term ultimate causes for economic growth examined in Chapter 1, theories of dualism, monsoon Asia rice economy and variable mixed economies reviewed in Chapter 2 and theory of property rights discussed in Chapter 3.

At the end of WWII, under the natural monsoon conditions, Japan, like other Asian rice-based economies, inherited (1) a highly labor-intensive rice culture leading to labor shortage in the peak seasons, population density, and fragmented small farms; (2) little employment in the slack seasons with unemployment, underemployment and disguised unemployment, and unlimited supply of labor; (3) unfeasibility of capitalistic large-scale farming, as three traditional productive and technological conditions, and (4) feudal landlord ownership as an institutional condition. There were also initial postwar economic and social conditions, i.e., (1) low per capita income, (2) vast population and a huge labor force, (3) low productivity in peasant agriculture with wage gap, (4) denunciation of colonialism and feudalism. The Japanese economy was a dual

[4] All the theoretical points of view examined in Chapters 1, 2 and 3 are relevant to issues analyzed in Chapters 4 and 5. But writing all of them into the theoretical thinking sections is not permitted by the length limit of the thesis. Thus, only some major theoretical views are referred to.

economy dominated by traditional agriculture. The rural areas did not enjoy much "spread effects", but suffered from "backwash effects" from the advanced big cities. Free market forces alone had been unable to overcome the "vicious circle" of poverty and realize sustainable rural development.

By 1960, with the same natural monsoon conditions, such an economic situation had been fundamentally changed in Japan by a mixed economy solution - multiple structures of public and private ownership, and government intervention. The General Headquarters of the Supreme Commander for the Allied Powers imposed the land reform, which was a conscious collective endeavor for changing the legally sanctioned structure of property rights in force - the feudal landlord ownership. It used Approach 3: reform of property rights structures through political or legal process, followed by exchange at prices lower than the market levels. The state, overcoming the bargaining power of the feudal landlords, forcibly bought and resold their land to peasants at prices which soon became minimal due to inflation, so that the landlords were not fully compensated in real terms. The externality-yielding party had to partially internalize the redemption externality, for not creating the future externality, so as to establish the sufficient conditions for Pareto efficiency. It established an equitable individual land ownership which brought huge incentives to peasants for production. The government set up powerful national rural cooperatives which not only collectivized overall services to the individual farming units, but also "socialistically" restricted them from buying, producing and selling inferior products. Such institutional changes, as one of the long-term ultimate causes, played a keystone role in sustaining economic growth.

For sustaining economic growth, there are not only institutional changes, but also technological changes as two long-term ultimate cause, and proximate sources (labor, capital, education, and structural change, etc.). Thus, the government further promoted technological efficiency especially dynamic efficiency, by supporting technological progress. Although "backwash effects" were not completely avoided (e.g., senilization and feminization of the agricultural labor force as reviewed in Chapter 2), "spread effects" were strengthened by constructing rural infrastructure, developing higher yields and multiple cropping of rice and other grains, diversified cropping, non-crop agriculture and off-farm employment, which led to full employment of peasants also in the slack seasons

and significantly lowered the wage gap. Peasants' migration to cities and work in towns further raised their income. The development of towns strengthened the "spread effects", constrained the "backwash effects" and lessened urban congestion. Agricultural mechanization with small machinery reduced labor-intensity in rice culture, released more labor and paved the way for capitalistic large-scale farming. The "vicious circle" of poverty was overcome.

II. The Remaining Obstacle

The ninth feature of the Japanese model of rural development is the persistence of the fragmented small farm. In Japan, as people became richer, rice consumption, although still necessary, declined. In the high wage economy, the income from rice production turned out to be much lower than that from diversified cropping, non-crop agriculture and off-farm employment. If rice farmers could not be viable, they would have to abandon rice production, so that rice self-sufficiency could not be kept. In order to make them viable and gain international competitive strength, the income from rice production should be raised through *removing fragmentation and enlarging farm size* so that large machinery could be used, labor saved, cost reduced and increasing returns to land scale gained, as Table 4.1 shows.

Large machines like riding tractors, combines and rice transplanters were introduced into agriculture in the late 1960s. Thus, as Table 4.1 reveals, up to 1965, under the dominance of small machinery, larger farms had higher machinery and power costs, as well as lower labor costs and total costs, although not significantly. From 1970 on, however, by using large machinery, larger farms significantly lowered labor costs, machinery and power costs and total costs - the total costs of farms over 3 ha were nearly one-half those of farms below 0.3 ha. This contrast shows that the agricultural mechanization with large machinery is characterized by increasing returns to land scale.[5] (Hayami 1988: 97)

Concerning supervision of labor, when farmwork had to be done by hand with simple tools, or by small machinery, it was difficult to standardize and

[5] The observations in Table 4.1 are not large enough for running regressions. More detailed data, however, are unavailable.

supervise the varied work of individual farmers. Thus, the head of a farm could not use or hire many farm workers, and thus could not run a large farm. Family farms would be more suitable. This was one of the major reasons why even a large feudal landlord had to lease land to tenants in small parcels as household farms, rather than employing the same number of tenants as his wage laborers in a capitalistic farm of large acreage to be managed by himself, as Chapter 2 already indicated.

With large machinery, however, it becomes much easier to standardize farm work and supervise workers. Thus, enlarging farm size and employing more wage laborers to run a large capitalistic farm became possible.

Table 4.1 Comparison of Rice Production Costs by Farm Size in Japan 1953-94

Cost item	Farm size (ha)	Index of production cost per kg (below 0.3 ha = 100)									
		1953	55	60	65	70	75	80	84	89	94*
Total costs	Below 0.3	100	100	100	100	100	100	100	100	100	100
	0.3-0.5	96	103	106	102	95	93	93	90	94	92
	1.0-1.5	89	98	96	88	78	75	70	67	71	72
	2.0-3.0	79	88	92	82	67	61	57	54	63	59
	Above 3.0	75	90	87	93	69	60	51	51	54	51
Labor costs	Below 0.3	100	100	100	100	100	100	100	100	100	100
	0.3-0.5	93	100	106	100	98	93	92	92	95	83
	1.0-1.5	83	91	91	87	79	72	66	62	67	66
	2.0-3.0	66	74	83	80	63	52	50	49	55	48
	Above 3.0	60	73	78	90	68	50	42	43	46	38
Machinery & power costs	Below 0.3	100	100	100	100	100	100	100	100	100	100
	0.3-0.5	87	138	135	134	104	102	103	91	96	93
	1.0-1.5	92	156	146	127	89	90	81	72	86	85
	2.0-3.0	89	143	137	108	72	82	64	54	77	86
	Above 3.0	89	144	121	123	69	76	55	51	63	71

Sources: 1953 & 1989: Nishimura & Sasaki 1993: 77. 1955-84: JMAFF (c); Hayami 1988: 98. 1994: JMAFF 1994 (* index of production cost per 60 kg).

Therefore, from 1961 on, as the first major effort toward large-scale farming, farmers' *purchase of land* was subsidized by the government. In 1962, the land holding ceiling was relaxed. However, not enough land sales occurred. On the supply side, part-time farming became dominant. Many able-bodied males commuted to off-farm employment, while their wives and old parents farmed. Absenteeism also occurred. But the part-time farmers and absentees had no incentive to sell land: off-farm income was high and a rural place for their retirement was preserved. For the part-time farmers, the distance between towns and villages was short, transportation convenient, they had no need to pay high rent for city dwellings and enjoyed less pollution. Moreover, as industrialization proceeded, land prices soared. Land sales in the future would be more profitable than now. On the demand side, because land prices went well over income surplus from rice production, it became unprofitable for full-time farmers to enlarge farm size through land purchase. (Hayami 1988: 80-89. Oshima 1993: 172-173). In effect, it was the shortcomings of private land ownership which hampered land sales.

Hence the resort to *land lease* as the second major effort toward large-scale farming. In 1970, rent control was removed, and land could be returned to landlords upon termination of contracts of more than 10 years. In 1975 and 1980, leases for shorter period were also legalized. Land lease occurred more than sale and formed some large-scale farms[6]. As not only older farmers in mountainous areas but also part-time farmers in lowland regions increasingly faced the lack of young successors for farming, they have been more willing to lease land (Tsuge 1997). But the progress was slow and limited. On the supply side, land owners were rich enough from off-farm income and did not have much incentive to rent out land. If the rent was not sufficiently high, the part-time farmers and absentees had no incentive to lease land; but if it was high enough to satisfy the lessors, the full-time farmers could not afford it. There was a strong equalitarianism among village people, who felt uncomfortable if a specific villager expanded his farm and became competitive in the market. This resulted in entrenched inefficiency

[6] For example, in Saitama Prefecture, some large scale rice-wheat farms were formed by owned and leased lands with the acreage from 3 ha to 27 ha and on average 10 ha, but operated by senior farmers often without young successors (Kurita 1994: 511, 519).

and vested interests. (Hayami 1988: 86-88, 108, 126). Farm households had a solid preference for permanent residence which has continued for generations, and regarded agricultural land as a valuable asset handed down from the ancestors which should be passed on as it is to the offspring. They still feared that once let, land would be lost, as happened in the land reform. Thus, people tended to avoid renting out land. On the demand side, because the small farm was composed of many fragmented parcels located in different parts of the village, it was not always possible for the lessee to join them into large land units (since the parcels of other land owners could be interspersed amongst them) or change them to non-farmland (dams, roads, canals, ponds, etc.) (since the ownership belonged to the lessor) for using large machinery. (Tabata 1990: 18, 22). Even if the owned and leased parcels were contiguous, once the lease was terminated, the lessor may shift the lease to another lessee, hence re-splitting the joined land and reducing farm size. Here, private land ownership and free market forces constrained both land lease and the efficient use of leased land.

In parallel, there was the third major effort - land consolidation under private farmland ownership, which refers to an exchange of the private ownership and location of spatially dispersed parcels of farms to form new holdings containing just one (or as few as possible) parcel(s), with the same (or similar) wealth in land as that before the exchange. No land owner would be a loser after the consolidation. (Oldenburg 1990: 183). In Japan, land consolidation was sporadically carried out in ancient times before the 20th century. In 1901, the law on cultivated land consolidation was established to enable owners of agricultural land to organize cooperatives for the consolidation of their lands. But the feudal landlords hampered the progress. The postwar government decided to promote land consolidation after the land reform. Thus, in June 1949, the Land Improvement Law was introduced. (Hyodo 1956: 558-559). During 1950-92, of the total 3,957,000 ha of farmland outside Hokkaido (data for 1992), 1,880,000 ha had been consolidated in Honshu (major part of Japan) (JSY 1993/94: 225. Tsuge 1997). It was strengthened in 1992 as a part of the *new policies*, as "The Basic Direction of New Policies for Food, Agriculture and Rural Areas" of the Japanese Ministry of Agriculture, Forestry and Fisheries (JMAFF) declared that "To foster farm management bodies that will operate on large-scale, aggregated farmland, methods to promote land improvement projects will be implemented that *allow*

land to be exchanged" (JMAFF 1992: 15). The aim was to create compact land units of 1, 2 or 3 ha. Since 1993, of the total 3,879,000 ha of farmland outside Hokkaido (data for 1994), 50,000 ha per year have been consolidated in Honshu (JSY 1996: 229. Tsuge 1997). Although the 1949 Law prescribed that agreement by 50 % of landowners of the village was sufficient for carrying out land consolidation and the 1992 new policies raised it to two thirds majority, in most cases 100 % consent was attained before starting it, but great efforts had to be made by officials to overcome serious difficulties in adjusting interests among peasants (Hyodo 1956: 559. Tsuge 1997. NIRA 1995: 174. Zhou, Jian-Ming 1998).

Land consolidation could turn farms from fragmented to compact units, expand parcel size, and make sale, lease, and other forms of joint use of land physically easier. But it did not enlarge farm size [e.g., a farm previously composed of 10 dispersed parcels (on average 0.1 ha each) could now hold one compact parcel of 1 ha]. Nor did it ensure efficient use of the consolidated land by the full-time farmers. A part-time farmer or absentee who previously had no incentive to sell or lease his fragmented farm may now still be unwilling to do so for his compact farm.

Since the 1970s, the fourth major effort to achieve large-scale farming was *commissioned agricultural work* (also called custom work) - commissioning or contracting a part or the whole process of rice cultivation primarily by small households holding land up to 0.5 ha to other farmers for using the latter's machinery, labor and management. The fifth major effort was *agricultural production cooperatives* - groups of farm households mainly holding land of 2-5 ha and over, accomplishing all or a part of agricultural production process by jointly using machinery and assigning members to commissioned work (this was already collective use of private land). Some production cooperatives were joined by farm households of a whole village, exercised village-wide collective use and management of private farmland and machinery, eliminated boundaries among parcels, thus enlarged farming scale (NIRA 1995: 172-174, 176-177). The sixth major effort was *urban-rural joint farming* - enterprises other than farm households organized joint management, joint venture, production corporation and limited companies in farming including receiving commissioned work. These three forms all had advantages in tilling otherwise idle land, achieving economies

of scale in using machinery, labor and management, and reducing cost of machinery. (Tabata 1990: 20-22)

But except for the village-wide collective use of private land, these three forms were less successful in achieving economies of scale of land. Without the agreement of all land owners concerned, they were unable to form large land units or change parcels to non-farmland (such as dams, roads, canals, ponds, etc.). Fragmentation was still a barrier. In the case of village-wide collective use of private land, cooperative members could agree to remove boundaries among parcels. But as long as private land was physically withdrawable, there could be three problems. (1) If the village needed to change parcels into non-farmland, members may disagree or demand high compensation. At enough transaction costs, the village may succeed in persuading them to accept other parcels as an exchange, but may also not succeed. (2) Due to various personal and organizational reasons/problems, some members may quit to operate land individually or organize another cooperative. Thus, the joined land would be re-split. At high transaction costs again, the cooperative may make a quitting member agree to accept a land in the periphery as an exchange with his original land so as to keep all lands of the remaining members together, but he may also refuse to accept. (3) Quitting with land would certainly reduce the farm size operated by the remaining full-time farmers of the cooperative, to which there may be no easy solution. In fact, historically, setting up of land use cooperatives and their breaking down have repeatedly happened (Tsuge 1997).[7]

A tax might be imposed on those absentee landowners and part-time farmers who are unwilling to lease land or join cooperatives/enterprises, as proposed by, e.g., Schiller (1956: 563). Possible shortcomings may be that bureaucracy would be involved, it may not be possible to impose tax on those full-time farmers who quit a cooperative/enterprise to operate land individually, and the ruling party may even not dare to initiate such a tax for fearing loss of peasants' votes. These may explain why such a tax has not been imposed thus far. Therefore, farm expansion may still be constrained by the free market forces.

Table 4.2 shows that not much success in economies of scale of land has

[7] It is a pity that in the English literature reviewed in this chapter, no example was given. But the statements by the Japanese authors should be trustable.

Table 4.2 Farm Size (ha) 1950-95 and Fragmentation 1988 in Japan (in percentage)

Year	Under 0.5	0.5-1	1-2	2-3	3-5	Over 5	Total	Average farm size
1950	41.0	32.0	21.7	3.4	1.2	0.8	100 %	1.0
1960	38.3	31.7	23.6	3.8	1.5	1.0	100 %	1.0
1970	38.0	30.2	24.1	4.8	1.7	1.3	100 %	1.1
1980	41.6	28.1	21.2	5.3	2.2	1.5	100 %	1.2
1985	42.7	27.1	20.4	5.5	2.5	1.7	100 %	1.2
1990	41.7	28.1	20.9	9.3			100 %	1.1
1994	21.7	37.2	27.9	13.3			100 %	1.4
1995	24.6	35.9	26.5	13.1			100 %	1.5

Parcels per farm over 5 ha			
1988	1-4	5-8	9 and more
100 %	28.4	39.1	32.5

Sources: For 1950-85: Kayo 1977; JMAFF (a); JMAFF (d); Hayami 1988: 27. For 1990 and 1994: JSY 1992: 161; JSY 1996: 223, 229. For 1995: JSY 1997: 225, 231. For 1988: JMAFF 1988: 250.

been achieved. Fragmentation was preserved even in those farms enlarged to over 5 ha. Much land still remained with part-time farmers and absentees in inefficient use. In 1995, of all farm households, *full-time* households accounted for only 15.3 %, *part-time 1* (mainly farming) took 18.3 %, and *part-time 2* (mainly on other jobs) 66.5 %[8]; of all farm household population, persons engaged in family-operated and custom farming 61.4 %, persons *mainly* engaged in farming 33.8 %, *principal* persons engaged in farming (*core farmers*) only 20.6 % and *male* principal persons engaged in farming 11.0 % (JSY 1997: 226)[9]. Utilization rate

[8] *Full-time* farm households refer to those farm households whose members are exclusively engaged in farming. *Part-time* ones denote those whose one or more members are engaged in jobs other than farming. *Part-time 1* (mainly farming) mean those part-time households earning income mainly from farming. *Part-time 2* (mainly other jobs) indicate those earning income mainly from jobs other than farming. (JSY 1997: 219)

[9] *Persons engaged in farming* refer to those household members 16 years of age and older who have been engaged in any work in farming for one year or more. *Persons mainly engaged in farming* contain those engaged exclusively in

of cultivated land decreased from 133.9 % in 1960 to 99.3 % in 1994 as Table 4.3 shows.

Table 4.3 Utilization Rate of Cultivated Land in Japan 1960-94 (in percentage)

1960	1965	1970	1975	1980	1985	1990	1992	1993	1994
133.9	123.8	108.9	103.3	104.5	105.1	102	100.8	100	99.3

Sources: JSY 1986: 159. JSY 1997: 235.

Table 4.4 Changes in the Number and Shares of Viable Farms in Japan 1960-94 *

	1960	1970	1980	1985	1990	1994
Total farms (1000)	6057	5342	4661	4376	3835	2787
Viable farms (1000)	521	353	242	232	253	198
Share of viable farms (%)						
Household number	8.6	6.6	5.2	5.3	6.6	7.1
Agricultural output	23	25	30	31	39	32
Arable land	24	18	19	21	26	23
Agricultural labor force	16	19	21	22	29	26
Agricultural fixed capital	19	19	21	24	29	23

* Including Hokkaido.
Sources: 1960-85: JMAFF (a); JMAFF (b); JSY 1996: 223; Hayami 1988: 81. 1990-94: JSY 1996: 223; JMAFF 1995: 179.

As a result, the number of viable farms diminished (see Table 4.4), and farmers and cooperatives organized political lobbying for *protection*. The ruling party had to yield, fearing loss of votes. (Hayami 1988: 49, 51). In 1960, a "cost-of-production and income-compensation scheme" was designed. The government

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farming and those engaged in farming for more days than in other jobs. *Principal persons engaged in farming (core farmers)* denote those mainly engaged in farming for more than 150 days per year. (JSY 1997: 219. Hayami 1988: 82)

It is important to note that core farmers include but do not equal full-time farmers since the non full-time core farmers still spend a part of time on other jobs which could otherwise be used on agriculture as well. Therefore, this thesis recommends the promotion of full-time farmers, rather than of core farmers as advocated in Japan (e.g., by Saito; Fukukawa; Tada & Kajiya 1995: 81).

as the monopsonist buyer (through the national cooperatives) bought rice at a predetermined price and sold it at a lower price, thus subsidizing rice farmers. The 1961 Agricultural Basic Law prohibited rice imports. Rice prices increased to 10 times the world level in the 1980s. Stimulated by the price distortion, rice was overproduced until 1992. (Rothacher 1989: 162-163. Schaede 1994: 388. Schaede 1997: 427)

Consequently, in the 1980s, the budget deficit on rice rose to more than US$ 7,000 million. Internationally, protests flowed, especially from the US. The GATT Uruguay Round of 1993 stipulated that rice imports gradually increase up to 10 % of the total consumption size per year until 2005. Following a disastrous harvest and loss of rice self-sufficiency in 1993, cheap rice had to be imported for the first time after 1960, in 1994, from Australia, China, Thailand and the US (Schaede 1997: 427). In 1996, two thirds of what the Japanese consumed was imported cheaper food. Further liberalization is expected (Kristof 1996: 4). World market rice prices were pushed up, thus affecting other grain importing countries especially the poor ones of the Third World. Domestically, with the fragmented small farms, it is difficult for rice farmers to subsist and for the government to establish a competitively surviving rice self-sufficiency. Subsidies have to continue. In late 1994, the government decided to spend 6,000 billion yen over six years from 1995-96 to 2000-01 for farmers to adjust to the new regime. In 1994-95, the government purchase price was maintained at the same high level as before, which again caused overproduction that, with the imported cheap rice, led to a glut in inventories. (Schaede 1997: 427. FEA 1997: 435). In contrast, the self-sufficiency rates of other agricultural products, being given less or no subsidies, all declined to below 100 % in 1994 (most of them have been so even since the 1960s), as Table 4.5 demonstrates. Thus, how to *effectively* consolidate and enlarge the fragmented small farms has become a critical issue in the sustainable rural development of Japan.

Similarly, Taiwan completed the first and second transitions during 1970-73 and 1994 respectively (SYAP 1970: 77. FEA 1977-78: 342. FEA 1997: 267). Land consolidation under private land ownership was promoted into law in 1936, started in 1959 [Huang, Chieh 1967: (Appendix) 1, 37-38, Foreword] and strengthened in 1975 as "the second land reform". By 1982, 300,000 ha, or two thirds of 446,000 ha farmland planned for consolidation had been reorganized into

large, rectangular fields more suitable for mechanized farming. By 1989, however, 88.6 % of farming households were still part-time farms, which earned 62.8 % of their income from off-farm activities. (Myers 1996: 260). In 1994, 4.4 ha were the rice farming area that enabled a full-time farm family to earn an income from its farming to balance off its consumptive expenditure. But those who held this or larger land scale only accounted for 7 % of all the farm families. (Cheng, Shy-Hwa 1994: 94-95). This and the above-mentioned Japanese case clearly show how free market forces could lastingly constrain farm expansion.

Table 4.5 Self-Sufficiency Rates of Foods in Japan 1960-94 (in percentage)

	60	65	70	75	80	85	90	91	92	93	94
Rice	102	95	106	110	100	107	100	100	101	75	120
Wheat	39	28	9	4	10	14	15	12	12	10	9
Barley	104	57	28	8	13	14	12	10	10	10	8
Naked barley	112	123	73	98	98	100	92	70	92	100	86
Miscellaneous cereals	21	5	1	1	0	0	0	0	0	0	0
Potatoes & sweet potatoes	100	100	100	99	96	96	93	91	91	89	88
Starches	76	67	41	24	21	19	13	12	13	12	12
Pulses	44	25	13	9	7	8	8	7	6	4	5
Vegetables	100	100	99	99	97	95	91	90	90	88	86
Fruits	100	90	84	84	81	77	63	60	59	53	47
Meat	91	90	89	77	81	81	70	67	65	64	60
Hen's eggs	101	100	97	97	98	98	98	98	97	96	96
Cow milk & milk products	89	86	89	81	82	85	78	77	81	80	73
Fishes & shellfishes	110	109	108	102	104	96	86	86	83	76	73
Seaweeds	92	88	91	86	74	74	72	70	75	70	70
Sugar	18	31	22	15	27	33	33	36	35	33	29
Fats & oils	42	31	22	23	29	32	28	24	19	17	15
Mushrooms		115	111	110	109	102	92	91	87	81	78

Sources: JSY 1993/94: 272. JSY 1997: 276.

As an opposite solution to private land ownership, rural land may be turned to public ownership (state, regional or village collectives), just as in

Cambodia, China, North Korea, Laos and Vietnam. But facing increasing land prices and a global wave of decollectivization and privatization, under a scheme of paying compensation, the public institutions may not afford to buy and land owners may not wish to sell; under a scheme without compensation, owners may not agree either.

Therefore, the fragmented small farms have become the *remaining* or *last* obstacle imposed by the monsoon to sustainable agricultural and rural development in monsoon Asia.

Theoretical Discussion

In Chapter 2, it was pointed out that in the prewar era, in comparison with the disadvantages (negative externalities) of the fragmented small farms, their advantages were much less and all related to backward economic, technological and social conditions. In other words, farmers were forced to accept them because they had no other choices. In fact, wet-rice farmers in monsoon Asia generally preferred having all their land in one contiguous parcel. During the postwar period up to the early 1960s, however, due to the implementation of features 1-8 of the Japanese model, farmers could overcome poverty with fragmented small farms. According to Chapter 3, there is no basis for believing that all existing negative externalities should be corrected. Only when the gains of correction exceed its costs, should they be internalized. Therefore, there was no urgent need to change this land tenure situation as the legally sanctioned structure of property rights in force.

In the late 1960s, however, on one hand, part-time farming and absenteeism developed further, leading to waste of land and other resources, and the high wage economy made small rice farmers difficult to be viable; on the other, the introduction of large agricultural machinery made large-scale farming profitable and could reach technological Pareto efficiency by producing more output with the same inputs or producing the same output with less inputs. Thus, the fragmented small farms became more disadvantageous than advantageous, and the time was ripe to change the existing property rights structures to internalize their negative externalities.

According to the Coase theorem, with the introduction of market

exchange, negative technological externalities could be internalized and Pareto efficiency reached. Thus, during the 1960s-80s, Approach 1 (permission for the relevant parties to exchange property rights through a political or legal process, followed by market exchange) was adopted by the Japanese government. The land holding ceiling was relaxed, rent control removed, land could be returned to landlords upon termination of contracts, and the first general method of changing the existing property rights structures (gradual changes in social mores and common law precedents including moral, practical and legal experiments) was used to encourage voluntary land sale, lease, or joining cooperatives/enterprises. In those cases where they were carried out, the negative externalities of the fragmented small farms could, to some extent, be eliminated and large-scale farming achieved. Since 1950 land consolidation has also been carried out which used both Approaches 1 and 2 [implementation of social actions (law, tax, etc.) to oblige the externality-yielding party to exchange property rights, followed by market exchange] and made large-scale farming physically easier.

Chapter 3, however, also stressed that when there are externalities, even if the private market economy has been introduced, equilibria will not be in general Pareto efficient since the private decentralized optimizations of economic agents lead them to take into account only private costs through the price system. Thus, after the market exchange had been allowed, the externality-yielding party might refuse to exchange relevant property rights, so that the previous negative technological externalities now became to be negative pecuniary ones. Because of private land ownership, part-time farmers and absentees could exert strong bargaining power by either refusing to exchange or demanding high prices, which in turn incurred higher transaction costs, especially huge costs of government subsidies to rice farmers, costs of time (more than three and a half decades since 1960), and opportunity costs (Zhou, Jian-Ming 1998).

Farm expansion through both land sale and individual lease was constrained by private land ownership and free market forces even after land consolidation. As stressed in Chapter 2, this shows that free market forces alone, or *private use of private land*, may not realize sustainable rural development.

As Chapter 1 pointed out, of the many variables for rural development, the institutional changes are the keystone. It is the institutional component that is most important in the interaction of institutions and technologies as the underlying

long-term ultimate causes that sustain economic growth of developing countries. But once production has reached the frontier permitted by the established institutions, even though the increase of production is technologically possible, it would be hampered by the vested interests, just as the case of fragmented small farms - the ninth feature of the Japanese model - has suggested. At this stage, another round of institutional changes should take place to allow sustainable rural development. Hence variable mixed economies were needed - varying relations between the public and private sectors, and their dynamic change over time in relation to changing needs in economy and society - for reaching dynamic or long-term Pareto efficiency.

In fact, variable mixed economies have been spontaneously practiced by village officials and peasants, using the first general method and proceeding from the first to the second phase of my hypothesis. In the fifth major effort (agricultural production cooperatives), the sub-village collective use of private land was actually at *phase 1*: sub-village individual-collective mixed economy (sub-village-wide cooperative/enterprise collective use of physically withdrawable private land shares, exercising collective-individual dual level operation of large land units, with the basic operation level at one household or at a farming unit including a number of households). The fourth major effort (commissioned agricultural work) was at threshold of phase 1. Once the commission receivers were organized, it became the fifth major effort. The sixth major effort (urban-rural joint farming) was the inclusion of urban enterprises into phase 1. These three forms all had advantages in tilling otherwise idle land, achieving economies of scale in using machinery, labor and management, and reducing cost of machinery, but were less successful in achieving large-scale farming since still seriously constrained by the private land ownership and free market forces.

In order to overcome the shortcomings at phase 1, the sub-village collective use of private land was extended village-wide, just as *phase 2*: village-wide individual-collective mixed economy. It could remove boundaries among parcels and achieve large-scale farming, but still maintained three shortcomings, owing to the withdrawability of private land.

Thus, a higher phase of the variable mixed economies, combination of the first general method with the second (conscious collective endeavor), and joint use of Approaches 1 and 2 are needed to eliminate the negative pecuniary

externalities imposed by the part-time farmers and absentees.

III. A New Model for Overcoming the Last Obstacle

Conjectural Proposal 1: Collective-Individual Dual Level Operation of Physically Unwithdrawable Private Land Shares under Corporate Ownership.

Whereas all the other means of production could be privately, publicly or jointly owned, land of each household could be turned to private land shares to earn permanent remuneration. While private land share-holders own land financially, the village corporation possesses land physically and could reorganize it. Private land shares could be inherited and sold in financial terms in the market. But share-holders could not withdraw land physically or claim financial reimbursement from the village (although if the village wished, it could buy private land shares when offered into collective land shares).

Private land could be divided into three types: housing land, either self-sufficiency land or family plot, and production land. *Housing land shares would not receive revenue from the village because the owner gets remuneration from using the land. Agricultural land* could be operated in a *Dual Land System* where most off-farm work engaging peasants have not secured their jobs. (1) *Self-sufficiency land* could be distributed in compact form equally to each household for self-sufficiency production, as a back-up basic social welfare (its significance may be seen from the recent reappearance of homeless people in cities who were mainly from rural areas[10]). (2) *Production land* for the market should be

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[10] For years, affluent Japan prided itself on the tiny numbers of people living on its streets and never envisaged "An Army of Homeless Rises Up in Tokyo".

The first record of homeless people dates from the Nara Period in the eighth century. They remained a common sight in big cities for more than 1,000 years. But they largely disappeared between the early 1950s and the late 1980s, when Japan experienced its economic "miracle".

Since the collapse of real estate and share prices in the early 1990s, however, Japan has experienced acute economic changes. The unemployment rate reached 3.4 % in early 1997, a record high. Although this rate is still low by international standards, the number of homeless people in Tokyo has already risen by about four-fold, to 10,000. They have also appeared in small cities recently for the first time. Thus, government officials, activists and academics expect that

contracted in compact form as well in long term to full-time farmers, or to expert farmers who bid for higher output of rice and other products, so that large land units could be formed and large machinery used. Contract could be transferred and renewed according to market principles of competition. If, within the contract period, other than owing to natural disaster, the output target is not reached, or the land quality diminished, or production abandoned, etc., the contract could be stopped and sanctions engaged. If the land has been improved, awards could be given. If some production becomes surplus, fields could be used for other (even non-agricultural) productive purposes. Production cooperatives/enterprises could also be set up, in which full-time or expert farmers could work together. Urban companies could participate. Wage labor could be hired. *Revenue (dividends) could be distributed among production land shares*, capital shares of the internal and external investors and labor contribution of the internal and external wage laborers.

Alternatively, where most off-farm work engaging peasants have secured their jobs, a *Single Land System* could be adopted. (1) A *family plot* much smaller than the self-sufficiency land could be given in compact form to each household for growing some vegetables to accommodate the peasant tradition of not buying them from the market. (2) Production land could be operated in the above-mentioned ways. Self-sufficiency land is no more needed since full-time farmers could operate production land for both self-sufficiency and the market, and off-farm workers could earn off-farm income; family plot is negligible from the quantitative point of view. Thus agricultural land is no longer divided into the Dual Land. Hence a Single Land System. Reducing self-sufficiency land to family plots correspondingly makes the farming scale of the production land much larger than under the Dual Land System. If those off-farm work engaging peasants have lost jobs there, they could regain full-time employment as farmers to independently contract production land or join production cooperative/enterprise, so that a back-up basic social welfare could be guaranteed (that is to say, there should be concern that once turned to shares, land would be lost). *Shares for self-sufficiency*

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homeless people may soon become a common sight.

The bulk of the homeless are poor, old, ill and unskilled people who were absorbed by the previous brisk economic growth from *rural areas*. (Kattoulas 1997: 2)

or family plot would not receive revenue from the village also because the owner gets remuneration from using the land.

One of the major *advantages* in this model is that it is not necessary for villages to buy land while private land share-holders could get permanent remuneration and keep a back-up basic social welfare. This would be relatively more acceptable to full-time and part-time farmers, absentees and old farmers without young successors in farming. Such a corporation could also extend to include a number of villages.

Such a corporation with physically unwithdrawable private land shares is similar to a modern capital share-holding corporation whose share-holders can earn dividends and sell shares in the market but cannot reimburse them from the corporation. But they are also different. (1) In a capital share-holding corporation, capital shares could be devalued even overnight. But land is scarce and the prices tend to be high and stay high. (2) Capital equipment can be out-moded easily, but land is always productive (as long as it is properly maintained). (3) Selling capital shares would reduce the capital value of the corporation, but selling land shares would not affect either the physical value of the land, or its productivity. (4) The poor management of a capital share-holding corporation may be unimprovable and lead to its bankruptcy, but the management of such a corporation, as long as it still holds land, is improvable, because the contracts the village gave to contractors could be stopped/disrenewed if they did not operate land properly. (5) In a capital share-holding corporation with many capital share-holders, it is the large holders who direct the use of shares, while in such a corporation, it is the public administration by one or a number of villages (composed of officials, representatives of land and capital share-holders and laborers) which directs the use of land.

The result is what I summarize as a *corporate-individual mixed economy*, with public infrastructure land, corporate ownership of agricultural and housing land with physically unwithdrawable private land shares, private/public ownership of other means of production, corporate/individual/cooperative management and capitalist wage labor employment. The above-mentioned shortcomings in consolidating and expanding the fragmented small farms by private use of private land through individual lease, sub-village and village-wide collective use of private land with physically withdrawable private land shares could be avoided.

This is actually at *phase 3* in my hypothesis for overcoming the fragmented small farms by variable mixed economies: collective use of either public land, or physically unwithdrawable private land shares under corporate ownership, exercising village-individual dual level operation of large land units, with the basic operation level at one household or at cooperative/enterprise including a number of households, as a third way between the centrally planned economy and free market system.

Needless to say, intervention of governments, education of public opinion, and active participation of peasants are necessary. Details (specific ways of establishing corporate land ownership; land-contract length and fee; proportions of dividing revenue among production land shares, capital shares and labor, etc.) should be determined through experiment, public discussion, and expert consultation. Just as with carrying out land consolidation under private land ownership, majority agreement by land owners in the village should be sufficient for establishing corporate land ownership, but great efforts should be made to try to reach consensus. (Zhou, Jian-Ming 1997)

The corporate land ownership with unwithdrawable private land shares would also consolidate and expand the fragmented small farms, which is different from both the Japanese and Chinese models and may be regarded as a new model.

A proposal is a proposal. It might be adopted either in the exact form or revised form and either immediately, or in the near future, or remote future, or never. Nonetheless, the task of scientific research is to search possible solutions. An idea might be despised as "no value at all" but proved as precious later. In contrast, a measure might seem valuable but then be demonstrated as not quite so (e.g., land sale in Japan was encouraged and subsidized in the 1960s but then failed). Therefore, experiments are necessary. Proposal 1 could be practiced in parallel with other experiments.

A Suitable, Natural and Logical Further Development of Land Tenure System

In Japan, the village-wide collective use of private farmland (as a production cooperative) was a spontaneous effort by village officials and peasants to resolve the last obstacle. This form could remove boundaries among parcels

and reach large-scale farming. It has been hailed by Tabata as "a *Japanese approach* to land extensive farming" and recommended by NIRA to be "actively" promoted (Tabata 1990: 22. NIRA 1995: 173). But neither author notes that the three above-mentioned problems may still remain. Moreover, Tabata is not aware that it is not a "Japanese" approach, but is what the *Chinese elementary agricultural producers' cooperatives* had experienced up to Apr. 1956 (during May 1956 - 1957 quitting with land was forbidden).[11]

In China, the land reform (May 1946 - June 1950 in the earlier liberated areas and from then to the spring of 1953 in the rest of country) turned the feudal landlord ownership to individual land ownership, and maintained fragmented small farms: 0.47 ha - 1.67 ha per household, divided into several parcels, each smaller than 0.067 ha (ER 1965: 13. Huang, Xi-Yuan 1986: 410). It brought peasants huge incentives to production and raised their living standard. But the fragmented small farms were too weak for the farmers to sustain rural development. Thus the period of Dec. 1954 - Apr. 1956 was dominated (covering more than 50 % of rural households) by what I summarize as an *individual-collective mixed economy*, including *temporary mutual aid teams* (labor exchange; common use of labor, private animals and tools; quasi mixed economy), *permanent mutual aid teams* (plus collective ownership of some assets; mixed economy to higher extent) and elementary cooperatives (collective use of private land; typical mixed economy). All the three forms started before 1949, but the mutual aid teams were predominant during Dec. 1954 - autumn 1955, and the elementary cooperatives prevalent during Dec. 1955 - Apr. 1956 and existed also in 1957, so that much experience *in individual cases* had been gained.[12] Due to the length limit of the thesis, only the major features of the elementary cooperative and its main shortcomings most *relevant* to the Japanese practice are briefly presented below.

Ownership and possession. Members kept individual ownership of land but

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[11] The following paragraphs about the elementary cooperatives and relevant institutional changes in China are based upon my preparatory work for this thesis. The references exceed 100 and are thus not listed here.

[12] For example, Walker notes that "An unrivalled collection of materials, on how cooperatives of every province had handled all kinds of problems, an instruction book for cadres, is 'The Socialist High Tide in the Chinese Countryside', 3 volumes. Many of the reports were first published separately between 1954 and 1956." (Walker 1966: 29)

gave it to the cooperative for collective possession. Land reclaimed by the cooperative was in collective ownership. Once joined, land sale and tenancy were banned so that restoration of the feudal landlord ownership was precluded within the cooperative (the then rural areas were still at a low wage economy with little off-farm employment; outside of the elementary cooperatives, land sale and tenancy were allowed so that quite a few peasants, owing to difficulties in production and living caused by natural disasters, diseases, debts, etc., re-lost land ownership and became tenants again). Members kept individual ownership of farm animals and large tools but could lease or sell them to the cooperative. The cooperative could also buy non-land means of production from other sources into collective ownership. The scope of an elementary cooperative was about 25-50 households. Some cooperative covered a whole village. Even in cases not all households of a village joined the cooperative, where parcels of the cooperative members were neighbor, boundaries could be eliminated (although members could still recognize their original parcels), so that the individual farming units were joined into relatively larger land units. The economies of scale of land were raised.

For example, in Qijiazi, Hecheng and Fanshen Villages of Fuyu County of Jilin Province, the land was originally divided into 3,440 pieces. The cooperatives joined them into 650 pieces, so that the area of cultivation was increased by 67.8 ha (1,017 mu). (Zhao, Fang-Chun 1955)

In Chadian District of Ninghe County, Hebei Province, under individual operation, upon small parcels of 0.27-0.33 ha (4-5 mu), one new type plough drawn by horse could only plough 0.4-0.53 ha (6-8 mu) per day. The cooperatives eliminated the boundaries among parcels and established large land units of 3.33 ha (50 mu) or so. Then, one same tool could plough 0.8-0.93 ha (12-14 mu) per day. (DGAA 1952)

Operation and management. Due to better division and coordination of labor, some of the labor force, previously under "disguised unemployment", was now released from crop-agriculture to sideline production (i.e., non-crop agriculture and off-farm activities), infrastructure construction and wasteland reclamation. The labor force remaining in crop-agriculture was thus less than before and could operate larger land per labor force. (Of course, the released labor force in the then low wage economy was not so much as in the high wage

economy as in Japan in the late 1950s and some areas of China in the 1980s).

For example, in Yu Luo-Shan Cooperative, Gedan Village, Sisha of Ji County, Hebei Province, before the setting-up of the Cooperative, in order to sow cotton seeds in their farmland of 4.7 ha (70.5 mu), divided into 22 parcels (on average 0.21 ha or 3.20 mu each), dispersed within 1.5 square km, these (future member) households had to use 36 able-bodied persons with several drills for one and a half days. The Cooperative reorganized cotton culture into farmland of 3.82 ha (57.3 mu), divided into 11 parcels (on average 0.35 ha or 5.21 mu each) in a concentrated area. Then three able-bodied persons could fulfil the sowing by using one drill for one day only. (Geng, Yan-Ling 1952). In this case, not only economies of scale of land were raised, but also much of the labor force was released.

The cooperative exercised collective-individual dual level operation of farmland with the household as the basic operation level. The cooperative contracted work or output quota to groups, laborers or households, linking workpoints with the fulfillment, of which, contracting output to households was the superior (this was the origin of the Household Contract System popularized since 1978). Land (including those units owned by other members) and other means of production could be distributed to the contractor for fulfilling the quota. The major reason why land was contracted to households for operation was that although large-scale farming by using large machinery could be physically possible since large land units might be formed, it was still not feasible in economic and technological terms, because not enough labor force could be released from crop-agriculture and large machinery was not available. The cooperative was responsible for investment, procurement, sale, machinery, technology and other services, construction of infrastructure and general management. As a result, the economic strength of the cooperatives was stronger than the individual farming units and mutual aid teams.

Payment. Revenue was distributed (in the following order of priority) for general cost of production; remuneration to leased privately owned non-land means of production (farm animals, large tools, etc., as capital shares); agricultural taxes to the state; a common welfare fund for aiding the poor; a common accumulation fund for increasing the collectively owned non-land means of production (farm animals, large tools, warehouse, etc.); management expenses

including managing costs and payment to managers as a kind of remuneration to labor; remuneration to land shares; and remuneration to laborers (non-managers). The remuneration to labor was according to the workpoints the laborer earned during the year. Workpoints were linked to the fulfillment of the contractual work or output quota.

Remaining shortcomings. One of the major shortcomings, as also in Japan, was that building of infrastructure occupying private land (changing parcels into non-farmland) was hampered by private land ownership. The economies of scale of land and construction of infrastructure were hence limited. Joining cooperative was voluntary and quitting with land free (until Apr. 1956), so the latter could cause re-fragmentation.

For example, in 1955, in Neiqiu County of Hebei Province, Daleidong Village intended to construct a dam to save more than 13.33 ha (200 mu) of good land from flood. But because the members who owned relevant land did not agree, it could not be realized. Heinao Village planned to build a road that could be used by carts so that 10 man-days could be saved. However, no single member allowed to build it on his (her) land. (Li, Ji-Ping 1956). Also in 1955, Zheng Nong-Mu Elementary Cooperative of Houyu Township of Fuzhou city owned a two-wheeled double-shared plough. Since the members did not agree to build broader paths on their own fields, it could not be used. (Ye & Liu 1956)

Even if this shortcoming could be resolved by land exchange to consolidate private parcels, the other relevant shortcoming remained, i.e., quitting with land from the cooperative was free (before May 1956), which could obviously result in re-fragmentation.

Even though a quitting member could be persuaded to accept land in the periphery of the joined land of the cooperative as an exchange with his original land, so as to avoid re-fragmentation, the farm size to be operated by the remaining full-time farmers of the cooperative would still be reduced, to which there was no easy solution.

These shortcomings prompted the elementary cooperatives, under the initial generally speaking proper guidance of the government, to voluntarily turn private land without compensation to collective ownership of the *advanced agricultural producers' cooperatives* which also started before 1949 and had gradually developed since. But speeded by the government's rash and immature

compulsory action in mid-1956 on those elementary cooperatives which were not yet ready to transit to the advanced cooperatives and those households which had not yet even joined the mutual aid teams or elementary cooperatives, the advanced cooperatives (containing about 150 households) dominated in May 1956 - July 1958, and were then succeeded by the *people's communes* (including several townships or even one county) in Aug. 1958. In Sep. 1962, a three-level system of ownership of the means of production was set up, i.e., ownership by the commune (lowered to comprise one township), by the production brigade (covering one administrative village or about 150 households) and by the production team (containing one natural village or about 25-50 households), with the team as the basic ownership and also operation unit of land.[13]

From May 1956 to 1978, Chinese agriculture in general was not successful. One of the major responsible factors was the replacement of the household contract system by the unique collective land operation (labor was given workpoints which could not exactly reflect one's marginal productivity on the varied farm work). In cases in which (as happened from time to time) the collective land ownership was combined with the household contract system, i.e., lowering the operation unit to the family level, it worked well. Therefore, the collectivization of land ownership itself was not misguided.

Finally, as Chapter 5 will elaborate, in 1978, China started the economic reform which, drawing both positive and negative lessons from the past, kept collective land ownership at village level, but introduced the household contract system. This again brought huge incentives to peasants for production upon the numerous newly established fragmented small farms.

But although some rural areas (especially in the Central and Western parts) still remain in the low wage economy, more and more of the others have successively moved into the high wage economy where this farming structure also hampered sustainable rural development. Thus, in the 1980s, the Dual Land System, Leasing System, Single Land System and Corporate-Holding System were invented. Where practiced, they achieved large-scale farming and hence

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[13] An administrative village may include just one natural village if it is very large or several smaller natural villages. Hereafter, unless specified specially, village in the Chinese context refers to administrative one.

overcame the last obstacle. This also is a third way between the centrally planned economy and free market system. It is based on collective land ownership so that land cannot be taken away by individuals. Under my proposed corporate land ownership, private land could not be physically withdrawn by the quitting members, thus the same goal would be reached.

Similarly, in Japan, the collective use of private land by production cooperatives (from sub-village to village-wide) is a measure to overcome the shortcomings of the private use of private land. But some major shortcomings still remain mainly owing to the withdrawability of private land. Therefore it may be a temporary or transitory solution as the Chinese elementary cooperatives, but not a fundamental one. Turning private land to corporate ownership with physically unwithdrawable private land shares would thus be a suitable, natural and logical further development so as to finally resolve the last obstacle.

Dynamic Determination of Farm Size

To what extent should a farm be enlarged? This is a practical question to which the answer varies across time and places. For example, in 1994, in Saitama Prefecture of Japan, the critical size for a viable rice farm has been established at 15 ha or more (Kurita 1994: 511), while in Taiwan a survival area for a full-time rice farm was 4.4 ha as mentioned above. As time passes, the economic structures (urban-rural, industry-agriculture, import-export, etc.), technologies, managing and tilling skills as well as the ratio of cost/profit in rice and other agricultural production change. Thus, farm size could be adjusted accordingly by joining compact farms for expansion or separating them for contraction.

Theoretical Discussion

Concerning the historical evolution of land tenure system, we can see that in order to promote sustainable rural development, variable mixed economies as sub-village and village-wide individual-collective mixed economy at phases 1 and 2 in my hypothesis had been experimented in China in the 1940s-50s in the form of the sub-village and village-wide elementary cooperatives. But was despised by main-stream Western economists and politicians as "communist collectivization". However, apparently even without being aware the Chinese precedents, the similar

sub-village and village-wide collective use of private land have been practiced spontaneously and independently in such a strong and leading capitalist country as Japan under the Liberal Democratic Party or its coalition with the Socialist Democratic Party since the 1970s toward a direction just opposite to the overwhelming global wave of decollectivization and privatization, a surprise for the advocates of free market forces. The village-wide collective use of private land is acclaimed and recommended to be actively promoted in the 1990s when the global decollectivization and privatization reached its peak as the former socialist countries in Central and Eastern Europe have all privatized agricultural land ownership (Russia did it in early 1996). Therefore, without political or ideological preconception, it may be claimed that a mixed economy to some degree combining public and private economic factors, especially the collective use of private farmland, may be a necessary condition for realizing sustainable rural development at least in monsoon Asia, irrespective of the political system or ideology in any specific country or economy.

Regarding Proposal 1 - collective use of physically unwithdrawable private land shares under corporate ownership - we can see that for overcoming the fragmented small farms obstacle, although sub-village collective use of private land is better than private use of private land, and a village-wide one further better than a sub-village one, three major shortcomings still remain, mainly due to the withdrawability of private land from the cooperative.

Here, the Coase transaction costs approach can be applied. Private land ownership incurs higher transaction costs chiefly because private land owners hold strong bargaining power. A cooperative/enterprise with physically withdrawable private land shares is not a typical "firm" in which individual bargains are eliminated and everybody follows the authority of the entrepreneur as Coase supposes, but a special "firm" composed of individual land owners with strong bargain power. Due to various problems within a cooperative/enterprise, rather than settling them within the "firm" which may also lead to high transaction costs, some members may choose to use their right to quit so as to operate land individually or form another cooperative/enterprise which may re-fragmentize the joined land and would certainly reduce the farm size.

Thus once village-wide collective use of private land has reached its production frontier, the negative externalities imposed by private land ownership

may hamper the achievement of dynamic or long-run (technological) Pareto efficiency. A new round of institutional changes, turning private land to either public or corporate ownership as a higher phase of variable mixed economies, may have to be made. Hence a new mixed economy, either large-scale farming public-individual mixed economy or corporate-individual mixed economy as phase 3 of my hypothesis, is recommended.

However, turning land to public ownership may also face high transaction costs, as the public institutions may not afford to pay compensation (exchange costs) and private land owners may not wish to sell (strong bargaining power); land owners may not agree with a scheme without compensation either (also mighty bargaining power). Thus, turning land to corporate ownership would be more suitable. Applying Approaches 1 and 2 of assigning property rights, agreement by the majority of land owners in the village should be sufficient for establishing corporate land ownership but great efforts should be made to reach consensus.

Just like public land ownership, corporate land ownership leads to lower transaction costs mainly because physically unwithdrawable private land share-holders do not have strong bargaining power. The corporation as the physical land possessor could behave like a real "firm" to reduce or eliminate individual bargains between the various cooperating factors of production so as to smoothen land consolidation and expansion. The Dual Land System and Single Land System based upon either public or corporate land ownership are compatible with both capitalist markets and Nuti's model of market socialism presented in Chapter 2 and incentive mechanism stated in Chapter 3.

Similar to starting land consolidation under private land ownership, agreement by the majority of land owners in the village should be sufficient for establishing corporate land ownership, but great efforts are needed to try to reach consensus. This is the application of Approaches 1 and 2 of assigning property rights in mixture so as to eliminate negative externalities and reach Pareto efficiency.

The above-analyzed evolution from private use of private land to sub-village, then village-wide, collective use of physically withdrawable private land shares, as well as its remaining shortcomings in China and Japan, further to collective use of collective land in China, and prospective collective use of

physically unwithdrawable private land shares under corporation ownership in Japan, is consistent with the following trend shown in Chapter 3: (1) the development of production, technology and market, which induces (2) new benefit-cost possibilities, which in turn shows (3) gains of internalization (or efficient production) of negative externalities that exceed its costs, which subsequently raises (4) the need for internalization (or efficient production) of negative externalities, which finally requires (5) a change of the existing property rights structures and (6) a new institutional and legal framework for enforcement. It has also provided evidences for my hypothesis that the fragmented small farms as the last obstacle imposed by the monsoon in sustainable rural development of monsoon Asia may be overcome by variable mixed economies, increasingly along three main phases. *Phase 1*: sub-village individual-collective mixed economy (sub-village-wide cooperative/enterprise collective use of physically withdrawable private land shares, exercising collective-individual dual level operation of large land units, with the basic operation level at one household or at a farming unit including a number of households). *Phase 2*: village-wide individual-collective mixed economy. *Phase 3*: either large-scale farming public-individual mixed economy or corporate-individual mixed economy (collective use of either public land, or physically unwithdrawable private land shares under corporate ownership, exercising village-individual dual level operation of large land units, with the basic operation level at one household or at cooperative/enterprise including a number of households, as a third way between the centrally planned economy and free market system).

As for the dynamic determination of farm size, Coase's transaction costs approach may also be applied. A firm becomes larger as additional transactions (which could be exchange transactions coordinated through market price mechanism) are organized by the entrepreneur and becomes smaller as he abandons the organization of such transactions. A firm will tend to be larger (1) the less the costs of organizing and the slower these costs rise with an increase in the transactions organized; (2) the less likely the entrepreneur is to make mistakes and the smaller the increase in mistakes with an increase in the transactions organized; and (3) the greater the lowering (or the less the rise) in the supply price of factors of production to firms of larger size. As time passes, the economic structures (urban-rural, industry-agriculture, import-export, etc.),

technologies, managing and tilling skills as well as the ratio of cost/profit in rice and other agricultural production change in a specific locality, economy or country. Thus, farm size could be adjusted dynamically according to the transaction costs.

IV. Other Rice-Based Economies under Private Land Ownership

Other rice-based economies under private land ownership in monsoon Asia may be generally regarded as at lower stages along the Japanese model of rural development. To examine their performance along all the nine features of the Japanese model is not compatible with the length limit of this thesis, although the situation concerning land reform in these economies has been reviewed in Chapter 2.

Group 1: Taiwan and South Korea together with Japan

Japan completed the first transition in 1960 (when the share of the agricultural labor force in the total labor force fell to one third) and the second transition 1974 (when the service sector overtook the industrial sector in size of labor force), and Taiwan concluded them during 1970-73 and 1994 respectively, as already mentioned. South Korea finished the first in 1980 (FEA 1981-82: 666), and its labor force in services was more than that in industry during (data unavailable before 1974) 1974-76, 78-87, 89-95, and less only in 1977 and 1988 (FEA 1975-76: 917. FEA 1976-77: 904. FEA 1977-78: 605. YLS 1978: 100-101. FEA 1979-80: 645. FEA 1980-81: 652. FEA 1981-82: 666. FEA 1982-83: 676. FEA 1986: 557. FEA 1989: 585. FEA 1992: 483. FEA 1997: 512). But to determine when it finished the second transition is not the task of this thesis (similarly this thesis is not involved in explaining the phenomenon that the labor force in services was/is already more than that in industry even during the first transition in some other rice-based economies of monsoon Asia). Taiwan and South Korea as "newly industrializ*ed* economies" have repeated the Japanese rural development process - and problems - and may thus be put together with Japan in Group 1. My Proposal 1 would be useful to them.

Group 2: Malaysia, Thailand, Indonesia and the Philippines

Malaysia, Thailand, Indonesia and the Philippines are at the lower stage of the Japanese model and may be classified as Group 2. The speed of industrialization of Malaysia, Thailand and Indonesia since the mid-1970s, 1986 and 1988 respectively has been so high that they have been called "newly industrializ*ing* economies", and, together with Group 1, "high-performing Asian economies". (Edwards 1997: 572. Dixon 1997: 1020. Hobohm 1997: 380. World Bank 1993: 1). In particular, Malaysia finished the first transition in 1985 (FEA 1989: 642). The Philippines entered this group in 1994 (Hodgkinson 1997: 920). They have made various great efforts in strengthening rural development. But income disparity unfavorable to rural areas and within rural areas still exists (unlike Group 1 which achieved equity during rapid growth) (Edwards 1997: 572-573. Dixon 1997: 1028. Hobohm 1997: 380. Hodgkinson 1997: 922. FEER 1993. Giordano & Raney 1993: 136-138. Hjort & Landes 1993: 62. Levin 1993: 11). In some areas (especially Malaysia), much of the rural labor force has been induced to abandon agriculture to go to cities (Edwards 1997: 574). Thus fragmented small farms have started to become an obstacle even before the overcoming of other obstacles to rural development (a difference from Group 1). They should strengthen rural development according to domestic emphases along features 1-8 (except for rice import protection) and start to overcome the fragmented small farms obstacle in feature 9 of the Japanese model.

Group 3: Bangladesh, India, Pakistan, and Sri Lanka

Bangladesh, India, Pakistan, and Sri Lanka are at the further lower stage of the Japanese model and may be placed in Group 3. Industrialization has been pursued but less speedy than in Groups 1 and 2. Thus the order of sequencing them is alphabetical. Although they have also made various endeavors to promote rural development, the majority of Asia's poor are in this group (and Group 4) and inequity in income distribution also exists. (Khan 1997: 122. Baru 1997: 320, 323. Taylor 1997: 873. De A. Samarasinghe 1997: 989. Levin 1993: 11). Therefore, they should overcome social instability and strengthen rural development along features 1-8 of the Japanese model (except for rice import protection).

Group 4: Bhutan and Nepal

Bhutan and Nepal, two of the world's poorest nations, are at the bottom of the Japanese model and may be joined into Group 4. They are also listed here alphabetically. Although progress in road-building was achieved, rural development remains behind that in other groups. Inequality in wealth is more serious. (Brown 1997: 672-673, 676. Shaw 1997: 146). Thus they need to accelerate the progress along features 1-8 of the Japanese model (except for rice import protection).

Conjectural Proposals 2-4

While Proposal 1 for Japan might also be useful for other rice-based economies in monsoon Asia under the private land ownership once the fragmented small farms have become an obstacle to sustainable rural development, additional proposals for these economies would be as follows.

Proposal 2. Raising economies of scale of land should be gradual and follow the progress of diversified cropping, non-crop agriculture and off-farm activities. If before the absorption of surplus peasants by the development of these sectors, much land were already transferred to large-scale farmers using large machinery and hiring fewer laborers, small peasants would be hard put to survive. Such a situation has appeared in, for example, India (Baru 1997: 320). Those peasants who have been crowded out from their small-scale subsistence farms had to become vagrants, slaves, city slum dwellers. Some of the other economies seem to be making their own way out of the Japanese model. But such a program is hazardous. Land reform with a limit on land holding and rent and protection of tenants from eviction is needed. As these sectors developed, such controls could be gradually relaxed and large-scale farming promoted.

Proposal 3. To those rice based-economies in monsoon Asia which have not yet completed land reform from the feudal ownership (as presented in Chapter 2), a complete land reform could be made without maintaining the fragmented parcels. The peasants could be given one or a few relatively larger joined land units through exchange of the fragmented parcels they held under tenancy.

Proposal 4. Population control should be strengthened. Otherwise, due to inheritance and other factors, not only the present fragmented small farms would

be further fragmented, but also the already consolidated farms would be re-fragmentized. For example, in India, although land consolidation has been pursued as indicated above, the problem of re-fragmentation is not prevented (Trivedi & Trivedi 1973: 186).

Although the Japanese model has not overcome the last obstacle imposed by the monsoon in sustainable rural development, its features 1-8 represent the correct stages or paths in overcoming all the obstacles before the last. Needless to say, other rice-based economies in monsoon Asia have the right to create their own models of rural development. Nevertheless, deviation from these features (e.g., rejecting a complete land reform, failing to set up a village-household mixed economy to provide services to individual households, promoting unmatured large-scale farming before non-grain agriculture and off-farm lines could absorb surplus peasants) would only result in slowing the progress of rural development.

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Chapter 5

The Chinese Model versus the Last Obstacle

I. The Chinese Model in General

The Chinese model of rural development, a third way between the centrally planned economy and free market system, started in 1978, although much work had been done before as stated in Chapter 4. It combines 12 major features or stages as already concisely introduced in Chapter 1. Since the focus of this chapter in on feature 9 plus 10, other features are presented relatively briefly.

1. ***Institutional changes for a small-scale farming and collective-individual mixed economy.***

A "System of Contracted Responsibilities on the Household Basis with Remuneration Linked to Output", briefly "Household Contract System", was set up. After experiments on various forms, the following two prevailed.

The major form: "Bao *Gan* Dao Hu" - contracting responsibilities to households and leave the total residual output to them without the involvement of workpoints.

(1) *Ownership.* Land was owned by village (equivalent to brigade) and could not be sold without the state's permission and could never be turned to individual ownership, all the other means of production could be privately or collectively or jointly owned.

(2) *Land use.* Normal farmland (as opposed to waste land) was divided into two parts under two systems respectively.

Equal Land System. (i) *Family plot* (ziliu di) was given to each household equally on per capita basis for production of some vegetables for self-consumption. (ii) *Responsibility land* (zeren tian) was contracted to households for production for the state, family and market equally either on per capita basis (adopted by the majority of villages) *or* according to the ratio of labor force to population of each household (L/P): larger amounts went to those with higher L/P ratio, so that households with more laborers could contract more land [implement-

ed by a minority of villages - 25 % of 280 villages in an investigation across the country (He, Dao-Feng et al 1992: 100)].

The distribution of land to households was by assigning parcels equally in terms of quality, quantity and distance, hence an *"Equal Land System"*, resulting in numerous fragmented small farms composed of parcels of different quality and size at different places in the village.

Dual Land System (preliminary form): (i) *Self-sufficiency land* (kouliang tian - grain rations land) was equally given to each household on a per capita basis for producing food for self-consumption; (ii) *Responsibility land* was equally contracted to labor force for fulfilling tasks for the state and market. It was the preliminary form of the Dual Land System, and adopted by only a few areas mainly in the Eastern part of China. (Zhang, Chao-Zun 1991: 66. Wang & Ma 1990: 33). Even under this system, parcels were fragmented because they were assigned equally in terms of quality, quantity and distance (RWD 1984: 30. Prosterman; Hanstad & Li July 1996: 14).

There were villages which distributed hog land for producing pig feed on a per hog basis to households (Zou; Yan & Shi 1984: 22). There were also villages which reserved land to meet the future demand by increased population or rural development, and assigned it to expert farmers for temporary use [in an investigation to 280 villages of the whole country, 37.9 % did so (He, Dao-Feng et al 1992: 100)]. Self-sufficiency land, responsibility land, together with either hog land or reserve land were called a *Trio Land System*. But because hog land could be regarded as either self-sufficiency land or responsibility land (if there were quotas to sell pigs to the state), and reserve land was temporarily used as responsibility land, it was still a Dual Land System.

In 1986, the per household area of cultivated land was 9.2 mu (0.65 ha), scattered into nine parcels as revealed by one investigation (Wu, Wei-Han 1989: 22) (also see Table 5.8). In 1988, the per capita area of cultivated land of peasant households was 2.06 mu (0.17 ha), including 1.82 mu (0.121 ha) (88.4 %) as land under contract and 0.18 mu (0.012 ha) (8.7 %) as family plot (CSY 1989: 156). By calculation, an average peasant household had four people (0.65/0.17 = 3.8).

(3) *Responsibilities.*

State quotas. Households should contract the annual production quotas of major agricultural products (e.g., grain, cotton, oil crops, sugar crops) and sell

them to the state at state-decided prices (quota prices). Due to natural disaster, the quota could be reduced or exempted and the households would get relief from the government or collective.

The state decided the national quotas [e.g., in 1988 it accounted for 12.7 % of China's grain output and 41.7 % of its commodity grain[1] (EBMC 1989 & SYC 1989)] and provincial quotas which were different across provinces. The provinces further broke down quotas to prefectures, and in turn to counties, townships, villages and finally to households. According to a national sample survey on the state compulsory purchase system, grain sold at the quota prices, depending on places, took 13.5 % - 21.6 % of the total grain output in 155 sample villages in 1988. (RCRD 1989)

The length of contracts of the first round was initially about three to six years as decided locally, which was extended by the state in 1984 to 15 years (i.e., 1978-93) (CPC 1984: 224), and for poor areas, 30 years (CPC & SC 1984: 297). That of the second round was established in 1993 as 30 years (i.e., 1994-2024) for all areas (CPC 1993, CPC 1994). The contracts were renewable.

Collective quotas. The village collective could also contract waste land [mountain, hill, beach, gully - as four wastes (Wang, Xue-Xi 1995: 23)] and waste water to households equally for reclamation if the village's population increased, so that the existing cultivated land was not enough for fulfilling the state quotas, or to expert farmers through competitive bidding for higher quotas to the collective up to 100 years (Prosterman; Hanstad & Li Nov. 1996: 94-95). The quotas could be waived during the period of reclamation and then phased in (Peng; Zhang & Yang 1988: 18). But not every village had waste land or water to be reclaimed.

State tax. Upon contracted responsibility land, households should also pay agricultural tax to the state in monetary form. The averaged state agricultural tax was 3.7 yuan per mu (0.0667 ha) in 1988, as up to about 4 % of the net income per mu (SYC 1989: 174, 663. RCRD 1989).

Collective fees. The State Council stipulated in 1991 the following two

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[1] Commodity grain refers to the grain sold to the state at both quota prices and negotiable prices (explanation see blow) and to the market at free prices, rather than self-consumed.

kinds of fees.

(i) *Village drawn fees* (cun tiliu). These fees were paid for the following purposes:

* *Common accumulation fund* for capital construction of farmland and water conservancy, afforestation, purchase of productive fixed assets and establishment of collective enterprises. Some villages also charged contractual fee.

* *Common welfare fund* for supporting households enjoying the five guarantees (i.e., wubao hu: childless and infirm old persons who were guaranteed food, clothing, medical care, housing and burial expenses), subsidizing households with special difficulties, cooperative medical and health care and other collective welfare facilities or services.

* *Management expenses* for remuneration to village officials and management costs.

(ii) *Township unifiedly financed fees* (xiang tongchou fei). This was for schools at township and village, family planning, special care given to disabled servicemen and to family members of revolutionary martyrs and servicemen, militia training, road construction in township and village, and other undertakings run by the local people and subsidized by the state.

These collective fees should not exceed 5 % of last year's per capita net income of peasants of the village and township in question. In developed areas, this percentage could be appropriately raised, subject to the approval of the provincial government. The amount of these fees paid by land contracting peasants was subject to the area of contracted land or the number of family labor force. (SC 1991: 12-13). (In reality, the forms, titles, amounts of the collective fees varied across the country and many areas incorrectly exceeded the 5 % ceiling after 1984.)

Labor services to collectives. The State Council also prescribed in 1991 the following two types of labor services.

(i) *Rural obligatory man-days* (nongcun yiwu gong) were mainly for afforestation, flood-prevention, road construction, schoolhouse repair, etc. Each rural laborer should provide 5-10 man-days of this kind each year. Local governments could increase such man-days in case of fighting against natural disasters.

(ii) *Labor accumulation man-days* (laodong jilei gong) were chiefly for

capital construction of farmland and water conservancy, and afforestation. Each rural laborer should deliver 10-20 man-days of this type each year. Under some conditions, subject to the approval of the county government, such man-days could be appropriately increased. They were mainly taken in slack seasons of farming. (SC 1991: 13)

(4) *Remuneration.* After selling products in quota to the state at quota prices (as one price track) and fulfilling other responsibilities, households could dispose the residual output for self-consumption or sale to the state at higher state-decided prices - from 1985 on, to the state at negotiable prices or to the market at free prices (another price track) - hence a Dual Track Price System[2]. Households could produce and sell minor agricultural goods to the free market, and also dispose of the products above the collective quotas if they contracted waste land or water.

The above responsibilities - state quotas (around 20 % of grain output), agricultural tax (up to 4 % of the net income per mu), collective fees (no more than 5 % of per capita net income), labor services to collectives (about 30 man-days) - were not very heavy. Thus the residuals as remuneration to peasants were high, hence also their incentive.

(5) *Land transfer.* Not only official transfer (returning the land to the village for redistribution) but also personal transfer [sub-contracting (zhuan bao) of land but still keeping the title of contractor in front of the village, and making-over (zhuan rang) of the contractor's title to another household] could be done on a voluntary basis and with the village's approval. The investment and improvement made by the transferor could be reasonably reimbursed. (CPC 1984: 224)

(6) *Disciplines.* It was forbidden to desolate the household contracted land, or build housing and grave on, or take away earth from it. Compensation should be paid if the fertility were lowered due to exploitative operation. Abandoned or desolated land should be withdrawn by the village. Land should also be returned

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[2] The quota prices (pai jia) were also called fair prices (ping jia), often lower than the market prices by 50 % - 100 % (Zhu & Jiang 1993: 449). The state negotiable prices were higher than the quota prices, and usually equivalent to or lower than the market prices. But after a very good harvest, the market prices may fluctuate toward lower than the pre-determined quota prices and negotiable prices. Such a trend was clear after the brilliant summer harvest of grain in 1997, as Vice Premier Zhu Rong-Ji claimed on July 7, 1997 (Zhu, Rong-Ji 1997).

to the village if the household in question was not able to till it or had shifted to other jobs. (Summary 1981: 119. CPC 1984: 225). These regulations, however, were widely ignored in practice.

(6) *Capitalistic operation.* Quasi-capitalist (hiring less than eight laborers) or capitalist (hiring eight or more) operation of land was allowed (CPC 1982: 172. CPC 1984: 225), but in fact not necessarily needed by the small farms. For instance, when an average household had four people and operated 8.24 mu (0.549 ha) of land, two laborers using farm animals could suffice for effective operation and still have some seasonal surplus labor (SY 1989). Therefore, the individual farming units prevailed.

(7) *Village duties.* The village had the duty to fulfil the general management of the contract system and provision of services, hence a village-household dual level operation of land with the household as the basic operation level. The village also was responsible for managing social welfare, infrastructure construction, natural disaster control, overall rural development, etc.

Gradualism was used in popularizing this system upon the willingness of peasants. By the end of 1983, it had been implemented in 96.6 % of households and 95.7 % of the cultivated land (Niu; Guo & Chen 1991: 54).

The minor form: "Bao *Chan* Dao Hu" - contracting output quotas to households and linking the fulfillment with workpoints which were then linked to remuneration.

(1) *The main features* were that the village undertook planning of planting, paid basic production costs, disposed of products (including paying tax and selling grain to the state), with the remuneration to households based on a basic income mainly in kind (grain and other products) subject to a bonus or fine (CEST 1996: 38).

The village as the contractee, and a laborer (representing a household) as the contractor, signed a contract, stipulating the annual quotas of (i) output of a certain kinds of products the contractor had to fulfil, (ii) man-days (workpoints) related to the output quota and (iii) production investment the contractee should provide to the contractor (i.e., the contractor had to bear the extra production costs).

The household could use a certain amount of land, farm animals, and tools distributed to it by the village. The village should also provide other means of

production to the contractor within the production investment quota, and was responsible for procurement, sale, machinery, technology and other services, construction of infrastructure and general management. Thus, the land was under village-household dual level operation with the household as the basic operation unit.

If contractors could fulfil the output quota, they could get the normal workpoints related to that quota. If they overfulfilled it, they would be rewarded by more workpoints or a part (e.g., 20 % - 80 %) or total of the above-quota output. If they underfulfilled it, they would get less workpoints, or had to reimburse the loss of the production investment of the village, or compensate a part (e.g., 40 %) or whole of the unfulfilled gap. In the distribution of payment at the end of the year, they would still get a minimum payment for subsistence, but the above-subsistence payment would be reduced in proportion to the loss. (Liu & Hu 1982: 30, 38)

(2) *Major merits.* Regarding the village, a merit of the system was that it could make more scientific arrangement and improvement in agriculture and rural development and ensure relatively easily that the tasks for the state and collective could be fulfilled by households (by contrast, under Bao Gan Dao Hu, households had more autonomy but the village less). Land consolidation and expansion were also easier. Concerning the households, because contractors were responsible for fulfilling the output quotas to earn correspondent workpoints, they had to attach importance to the quality of the daily farm work since it would affect the final output. Since overfulfillment of the quota would bring more workpoints as a bonus and underfulfillment incur less workpoints as a fine, both incentive and responsibility were introduced directly to the households. Shirking in terms of work quality could thus be minimized. Family members including the aged, children and women also had an incentive to fulfil their tasks.

(3) *Principal remaining problem.* The system made workpoints as a linkage between output quota and remuneration. It thus was different from Bao Gan Dao Hu, which abolished them. During the year, the contractors accumulated workpoints. At the end of the year, the general cost of production of the whole village and management expenses including subsidies to managing officials, among other items, had to be deducted from the total final revenue. Only the residual could be divided by the total workpoints and distributed to the contractors

accordingly. But village officials might manage production less efficiently, which would lead to higher general cost. They could also claim that they had worked harder and deserved more subsidies. It was not so easy for the ordinary members to exert day-to-day monitoring on their performance. Therefore, the remaining revenue to contractors was affected by the general cost of production and management expenses. In other words, the payment to contractors did not necessarily match their marginal productivity.

Only those villages with very efficient and fair cadres could adopt the system. Thus it was not popular. During 1990-94, on only 0.23 % of the total farmland of the country, about 7,000 villages which accounted for 0.15 % and 0.2 % of all villages in 1990 and 1992-94 respectively still implemented it. (CEST 1991: 33. CEST 1996: 38). For this reason, the following analysis will concentrate on the major form of Bao Gan Dao Hu.

The commune-brigade-team system was formally abolished during Oct. 1983 - the end of 1984 (Hu, Sheng 1991: 511-512). The commune was turned to township as the lowest level government, brigade changed to village, and team became villagers group. But before the formal change, this system was already being replaced by the village-household collective-individual mixed economy.[3]

2. *Government policies supporting rice production and rural development.* These included making market-oriented policies, establishing laws and regulations, regulating state agricultural taxes, purchasing quotas and prices, providing financial, technological and material support, importing grain when necessary, combating corruption and crimes, and policies supporting features 1 and 3-12.

Besides institutional changes, technological progress also contributed to economic growth, which was embodied in features 3-8 and 10-12.

3. *Construction of rural infrastructure.*

4. *Higher yields and multiple cropping of rice and other grains.*

5. *Diversified cropping and non-crop agriculture.*

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[3] There have been also state-owned farms. The "Household Contract System", farm-household dual level operation of land with the household as the basic level, and transition from small-scale farming to large-scale one are relevant to them too. Due to the length limit, except for citing a few examples, this chapter does not analyze them.

6. ***Off-farm employment.***

7. ***Peasant migration to cities and work in town and village firms.*** Compared with previously being bound within the countryside, peasants could now enter cities to be employed. Both villages and individuals could also set up enterprises in cities. But in order to avoid urban congestion, peasants (except for being approved to live in cities as university graduates, newly recruited employees of state enterprises, etc.) were not entitled to permanent city residence, commodity grain at prices subsidized by the state, housing allocated by the state at subsidized rent, state subsidies for inflation, labor insurance by the state, or other social welfare which city residents could enjoy. Instead, peasants were encouraged to industrialize and urbanize rural areas by establishing collective township and village enterprises (TVEs), individual, capitalist (called private), urban-rural joint, external[4] and foreign single or joint enterprises, and developing towns into small and medium new cities.

8. ***Agricultural mechanization with small machinery.***

Features 1-8 in general were similar to their counterparts in the Japanese model (the major differences being the individual land ownership in feature 1 and rice import protectionism during 1961-93 in feature 2 of the Japanese model) and have had the similar positive effects as in Japan.

Also, similar to Japan, the fragmented small farms began to be inviable for rice and other grain production as the low wage economy moved to the high wage economy, hence a second round of institutional changes (which will be dealt with in the next section of the chapter) starting roughly around 1985:

9. ***Institutional changes for a large-scale farming and collective-individual mixed economy*** to achieve economies of scale of land, which resulted in

10. ***Agricultural mechanization with large machinery.***

There are also two features reflecting regional transfer of development.

11. ***Earlier development in some (chiefly Eastern and costal) rural areas, and its promotion in other (mainly Central and Western) areas*** especially from

[4] "External" refers to Taiwan, Hong Kong and Macao, which are not "foreign".

the early 1990s on.[5] This feature was not so conspicuous in Japan probably because it is not very big in size and such a transfer was much quicker.

12. ***Introduction of more advanced technology and management, larger investment, and domestic and international markets to agriculture by urban-rural joint enterprises, and external and foreign joint and single ventures.*** In Japan, the introduction of foreign technology was marked, but foreign investment and venture in agriculture were not so, because the private land ownership even constrains land lease to Japanese citizens.

Features 11 and 12 really need a further analysis. But, in this chapter, only some examples will be given.

There is still much room to improve in all the 12 features. 3-12 cannot be regarded as completed. Nevertheless, some real success has been achieved. Table 5.1 displays the during 1978-95, China has steadily progressing toward the completion of the first transition (agriculture-industry), as the labor force in agriculture declined. Table 5.2 indicates that *rural* labor force in farming, forestry, animal husbandry and fishery decreased whereas that in industry and services increased. Off-farm employment and peasant migration to cities and work in towns and villages have been promoted. Thus the first transition in based upon overall rural development, rather than on unique industrialization which neglected rural areas. Table 5.3 shows that per capita output of grain and cotton was higher in later years than in 1978, indicating success in agriculture. The per capita output

Table 5.1 Employment by Main Sectors in China 1978-95
(in percentage)

Year	Primary	Secondary	Tertiary	%
1978	70.5	17.4	12.1	100
1985	62.4	20.9	16.7	100
1990	60.0	21.4	18.6	100
1995	52.9	23.0	24.1	100

Sources: CSY 1995: 83. CSY 1996: 88.

[5] This is a general statement. It does not exclude different speeds of development within the Eastern and costal rural areas. For example, Jiangsu Province is in Eastern China. But its Southern part - the Sunan region - has been much more developed than its Northern part - the Subei region.

Table 5.2 Composition of Rural Social Labor Force in China 1978-95 (in percentage)

Year	Farming, forestry, animal husbandry & fishery	Industry				Wholesale, retail, food services & storage	Other off-farm lines	%
		Total	Mining, manufacturing & public utilities	Construction	Transportation & communication			
1978	92.41		n.a.	n.a.	n.a.	n.a.	n.a.	
1985	81.89	11.62	7.40	3.05	1.17	1.25	5.25	100
1990	79.35	12.82	7.69	3.62	1.51	1.65	6.17	100
1995	71.79	15.89	8.82	4.89	2.18	2.60	9.72	100

Sources: CSY 1991: 76, 80. CSY 1995: 330. CSY 1996: 354.
Note: In CSY 1995 & 1996, "industry" is parallel with "construction" and "transportation & communication", thus is a narrower concept of "industry" equivalent to "mining, manufacturing & public utilities".

Table 5.3 Per Capita Output of Major Agricultural Products (kg) in China 1978-95

Year	Total grain	Rice	Cotton	Oil crops	Meat
1978	316.61	142.25	2.25	5.42	n.a.
1984	390.30	170.82	6.00	11.41	n.a.
1985	358.15	159.25	3.92	14.91	18.20
1988	354.94	152.32	3.74	11.89	22.33
1989	361.61	159.83	3.36	11.49	23.32
1990	390.30	165.60	3.94	14.11	24.99
1995	385.25	152.93	3.94	18.58	43.43
1996	400.363	n.a.	3.43	17.98	47.39

Sources: CSY 1991: 61, 315, 326. CSY 1996: 69, 371, 372, 378. Bulletin 1996.

of oil crops and meat rose, demonstrating positive results from diversified cropping and non-crop agriculture.

Theoretical Discussion

After WWII, in order to overcome dualism and the "vicious circle" of poverty inherited from the prewar period, both China and Japan undertook land reform and established individual land ownership. With an individual-cooperative mixed economy, plus features 2-8, Japan had succeeded by 1960. China guided peasants to an individual-collective mixed economy through temporary mutual aid teams, permanent mutual aid teams and elementary cooperatives, and then collectivized land ownership in 1956. Thereafter until 1978, China abandoned the mixed economy but exercised a combination of collective ownership and operation of land under the centrally planned economy. This failed and China then fell behind Japan. However, this period was not completely wasted since it provided valuable experiences. During 1978-83, China founded a small-scale farming and collective-individual mixed economy with success. Therefore, the achievement in both Japan and China was thanks to a mixed economy, as stressed in Chapter 2: multiple structures of public and private ownership plus government intervention rather than ownership.

Chapter 2 presented Nuti's model of market socialism as a third way between the centrally planned economy and free market system: an economy where the ownership of all means of production and their further reproduction is in the hands of the state, but these means are leased in competitive markets to private entrepreneurs who retain a residual claim to both income and capital gains and are able to transfer those claims. In the Chinese case, the land was owned by the village collective, but contracted to households which retained a residual claim to both income and capital gains and were able to transfer those claims. Thus the small-scale farming and collective-individual mixed economy in China was in common with Nuti's model of market socialism and was a third way between the centrally planned economy and free market system.

Chapter 3 pointed out that in the case of a transaction involving several people supplying labor, physical inputs, and so on, if some of the parties involved receive fixed amounts of value specified by a contract and there is only one

residual claimant, then maximizing the total value received by the residual claimant is just the same as maximizing the total value. If the residual claimant also has the residual control, then just by pursuing his own interests and maximizing his own returns, the claimant will be led to make the decisions reaching Pareto efficiency: in an economy there is no other productively feasible allocation which makes all individuals in the economy at least as well off, and at least one strictly better off, than they were initially. Under the Chinese Household Contract System, a household as a single individual both had the residual control and received the residual returns after fulfilling the state and collective tasks, thus the residual decisions made would tend to be Pareto efficient ones, just as under private land ownership in the Japanese model.

Approach 1 of assigning property rights (permission for the relevant parties to exchange property rights through a political or legal process, followed by market exchange) was used in establishing the small-scale farming and collective-individual mixed economy: households were given land for producing products to be sold to the state at quota prices (in general lower than the negotiable and market prices) and fulfilling other responsibilities in exchange for the right to dispose the residual for self-consumption and sale to the state at negotiable prices and to the market.

Both of the two general methods in the evolution, adjustment or change of property rights structures, as reviewed in Chapter 3, were adopted in establishing the Household Contract System. The first general method is to make *gradual* changes in social mores and common law precedents. At each step of the adjustment process, it is unlikely that externalities per se are consciously related to the issue being resolved. The moral, practical and legal experiments may be hit-and-miss procedures to some extent. In a society that weights the achievement of efficiency heavily, their viability in the long run will depend on how well they modify behavior to accommodate to the externalities associated with important changes in technology or market values. Indeed, even during 1956-78, the Household Contract System was already implemented by peasants and grass-roots officials time and again in different areas, which showed its superiority over the combination between collective ownership and operation of land.

The second general method is to make a *conscious* collective endeavor, such as a major reform or revolution at a certain stage of the gradual changes in

the first general method. Finally during 1978-80, as a part of feature 2 of the Chinese model, the state decided to legalize and popularize the Household Contract System as the beginning of an overall economic reform.

China's success upon the establishment of the Household Contract System also supports the thesis emphasized in Chapter 1 that it is the institutional component that is most important in the interaction of institutions and technologies underlying the growth of developing countries, and of so many variables for rural development, the institutional changes are the keystone.

The first round of institutional changes paved the way for technology, as another long-term ultimate cause, and labor, capital, education, structural change, etc., as proximate sources of economic growth to play important roles. Hence features 3-8 and 11-12 of the Chinese model, similar to features 3-8 in their Japanese counterpart.

Chapter 2 indicated the many disadvantages and few advantages of the fragmented small farms. Nevertheless, they succeeded during 1978-84 in China, just as in the 1950s in Japan, because they were suitable to the then relatively backward economic, social and technological conditions. This affirms the point of view in Chapter 3 that there is no basis for believing that all existing externalities should be corrected. Only when the gains of correction exceed costs, should the existing externalities be internalized.

Features 1-8 in the Chinese and Japanese models are analogous. This reflects that the rice-based economies in monsoon Asia have common features and tasks in overcoming the common obstacles imposed by the monsoon.

The theoretical discussion in Chapter 4 on the significance of the Japanese model is applicable to that of the Chinese model, and therefore does not need to be repeated here.

II. The Emergence of the Last Obstacle

Table 5.3 showed that China's per capita output of grain, rice and cotton reached a peak in 1984, but declined by a large margin in 1985-88. Many factors were responsible, including the over-optimism by the central and local governments that China's agricultural problems had been solved once for all, thus failing

to support agriculture continuously; the improper shift of priority by many local governments from grain production to developing non-grain agriculture and off-farm lines; the reduction of farmland acreage due to rural industrial and housing construction; the exorbitant charge of collective fees well over peasants' capacity (5 % of last year's net income) for rural development (corrupt misuse also occurred); the insufficient services by villages, resulting in weak operation of land by single households; the starting of economic reform in industry and granting of autonomy to industrial enterprises for partially deciding prices in 1984, leading to higher expenditure by peasants on buying more expensive industrial materials for agricultural use and higher costs for grain production; the reduction in rice and grain consumption as people became richer and demanded more vegetables, fruits, meat, aquatic products, just as what happened in Japan, etc. But, here, the focus is on the inviability of the fragmented small farms for rice and grain production in the high wage economy.

Increasing Smallness and Fragmentation of Land due to Population Growth

Under the Equal Land System, land should be returned to the village from those who have left due to death, marriage, etc., and new comers from birth, marriage, etc. were entitled to an equal share of land (Yang, Zuo-Hua 1995: 48). Births outnumber deaths since China's population is still increasing, while farmland acreage is decreasing. The Equal Land System put no control on and even encouraged higher fertility of population.

Village reserve land, which was kept not only for increased population but also for overall rural development, had to be assigned to new people and was gradually exhausted. For example, in 1986, Luoshui Town of Shifang County of Sichuan Province[6] had 220 net increased people, including 158 as the newly born and 120 as immigrated. In 1987, 26 % or 16 of 61 villager groups had finished their reserve land. Still, it had to register marriage by more than 200 people, receive a number of immigrants, and arrange a quota for 50 births, a part of whom, however, could not be given any land. (Zhou, Da-Fu 1987: 29)

Redistribution of already assigned land had to be done which made the

[6] Sichuan Province is in the Western part of China.

fragmented small farms smaller (Wang, Gui-Chen 1989: 16. Yang, Wen-Bo 1995: 43). Minor redistribution - only involving the land of those households whose size was changed - could be done either at the time the family size altered or over several years. Major redistribution - whereby the land of all households was returned to the village for redistribution - was done each three-six years. (Prosterman; Hanstad & Li 1995: 40). Such a redistribution of land, although generally accepted by peasants for equality consideration, violated the land use contracts, led to instability and low confidence in maintaining contracted parcels, discouraged long-term investment and encouraged the short-term behavior [i.e., getting the highest output in the short-run by depleting land fertility in exploitative ways, such as applying large amount of chemical fertilizers and reducing or abandoning organic ones, resulting in the hardening of soil (Wang, Song-Pei 1989: 32)]. A major redistribution involving a whole county would cost huge expenditure, e.g., 2 million yuan in Lulong Country of Hebei Province[7] (Yang, Wen-Bo 1995: 43). In those areas where land was not readjusted for a long time, land contracted was not proportionate to changed family size, hence seriously unbalancing interests among households of the village (Qin & Wang 1995: 42).

Inefficient Use of Land by Part-Time Farmers and Absentees

Income from grain production declined relatively, while that from diversified cropping, non-crop agriculture and off-farm activities grew quickly, due to development on these lines. According to an investigation, during 1984-88, net income per mu (1/15 ha or 0.067 ha) increased by 12.1 % in growing grain, but 313 % in cash crops; net income per yuan investment decreased by 15.6 % in planting grain but increased by 270 % in cash crops and 10.1 % in forestry, animal husbandry and fishery; net income per man-day increased by 15.1 % in producing grain, but 96.5 % in cash crops, 73.8 % in forestry, animal husbandry and fishery and 45.9 % in off-farm lines. (RSO 1990)

Thus, peasants naturally wanted to produce less grain, and be engaged more in other agricultural lines and off-farm activities. Hence also peasant migration to cities and work in town and village firms. As Table 5.2 showed, during 1978-95, rural labor force has been declining in agriculture but increasing

[7] Hebei Province is in the Eastern part of China.

in industry and services. This has led to feminization and senilization in agriculture. Apparently, in the high wage economy, it was difficult for the remaining full-time farmers to survive on rice and grain production by tilling the fragmented small farms.

Low willingness to transfer land. In order to make the remaining full-time farmers viable and maintain/increase rice and grain production, the land inefficiently used by other peasants should be transferred to them, so that they could enlarge farm size, use large machinery, reduce costs, and gain increasing returns to scale. But under the Equal Land System, the land transfer was voluntary. In the areas where the off-farm activities were relatively developed and a lot of peasants had got jobs there to earn higher income, an investigation showed that, of 3,366 households whose income from grain production was lower than 20 % of the whole income, only 4.5 % were willing to officially transfer land (RCSC 1996). Another revealed that 10.8 % of households were willing to do so (Lu, Xiu-Jun 1989: 52). A questionnaire to 1,039 workers of rural firms in Changshu City of the Sunan region where off-farm lines were highly developed demonstrated that 33 % of them were willing to till self-sufficiency land only and return responsibility land, and 20 % willing to leave farming completely, as long as their land was taken over by someone else [Jiang, Zhong-Yi et al 1992 (c): 77-78]. An investigation to 4,015 peasant households in the suburbs of Shanghai Municipality[8] where off-farm activities were the most developed, indicated that 45.7 % were willing to partially or completely transfer land (Meng, Fan-Qi 1988: 13). But regions like Shanghai and Sunan were few.

The major concern of peasants was that land was the last resort for their living and served a back-up basic social welfare in case they have lost jobs in off-farm activities. Peasants who have transferred to work in rural off-farm enterprises in general could not guarantee their jobs. The majority of them were small firms. Closures and bankruptcy were frequent. For example, during 1979-87, about one million TVEs had gone bankrupt (ED 1988). In Yanbei Prefecture of Shanxi Province[9], during 1981-86, the total rural labor force increased by 77,000. In 1983-84, employees of rural firms increased by 130,000. Due to

[8] Shanghai is in the Eastern part of China.
[9] Shanxi Province is in the Central part of China.

difficulties met by the firms, however, 54,900 and 11,000 had to return to agriculture in 1985 and 1986 respectively. (Shen, Shou-Ye 1987: 28). But no rural instability was caused since they could still till the household contracted land.

80 % of peasants who left their localities to earn income outside (mainly in cities) during periods of economic expansion were manual labor (Zhang, Shi-Yun 1996: 17). During economic contraction, they both needed and also could return to the countryside to till land. Primarily due to the back-up social welfare function of the household contracted land, city slums which are common in many developing and even developed countries are not found in China (recall the reappearance in the 1990s of jobless and homeless people in Japanese cities originated from rural areas indicated in Chapter 4). (Zhang & Hou 1995: 27)

Low occurrence of personal land transfer. Chiefly as a result of this concern on the supply side, during 1984-92, of 7,012 households across the country, 93.8 % did not make any personal transfer of farmland; 4.2 % did a partial transfer; and only 1.99 % transferred their whole farmland (ED 1994). In 1994, merely 1.06 % of households of the whole country carried out personal land transfer (CEST 1996: 38-39).

Inefficient use of personally transferred land. In cases where such transfers were carried out, they were mainly done spontaneously among relatives, so that parcels were often non-contiguous and still fragmented, and in short-term, seasonal and unstable (Zhang, Shi-Yun 1996: 17). An investigation to 1,879 households which were engaged in personal land transfer in Langfang Prefecture of Hebei Province before 1987 showed that even the longest contract was no more than four years (Cao & Liu 1987: 36) (of course, when the village implemented minor or major land redistribution following the changes of family sizes, transferred parcels would not be excluded, which shortened the holding of them). Accordingly, receivers had little incentive in long-term investment in land (Liu, Zong-Xiao 1987: 64).

On the demand side, where income from grain production was much lower than that from other lines, quite often no villager wanted to accept a personal land transfer (RWD 1984: 31). Those who transferred a part of their land normally singled out poor land [as reported in Yanbei Prefecture of Shanxi Province and the Sunan region], which nobody was interested in. This promoted careless farming or even led to desolation of land. (Shen, Shou-Ye 1987: 28-29. Qiu, Wei-

Lian 1988: 63)

Some peasants engaging in off-farm activity sub-let land to outside farmers who were mainly from poorer rural areas. The lessors charged a bit or no sub-letting fee, or even paid some fee to the lessees for fulfilling state quotas. The length varied (e.g., from two to seven years in the Pearl River Delta of Guangdong Province[10]). The lessors still kept the title of contractor within the village. The outside farmers could earn higher income and learn more advanced technologies, farming skills and new ideas. But many of them changed to produce cash crops or turned land to ponds for fishery, affecting grain output. They were also engaged in the local off-farm activities, hence part-time farming. Moreover, a lot of them left their original rural areas to escape family planning rules and to have more children in other areas. (Tao, Xiao-Yong 1986: 16-18)

Part-time farming prevailed. Many peasants only farmed in busy seasons, without taking care of plants in the rest of the year. A lot of able-bodied males worked in cities, while their old parents and wives cultivated the land. Because the farms were tiny, it was possible for peasants who worked in nearby firms to just till land in early mornings, noons and evenings during slack seasons, and to concentrate on farming during the short busiest periods by leaving the firms temporarily. They were satisfied with producing for self-sufficiency (so that they did not need to buy grain and vegetables) and fulfilling state quotas (which was not their aim but a condition), unwilling to produce more for the state and market, to transfer land or make more effort in farming. (Zou; Yan & Shi 1984: 23. Ding; Wei; Yang & Sang 1995: 23. Yang, Wen-Bo 1995: 43. Zhu, Qi-Zhen 1996: 35-36)

For example, in Suzhou City of the Sunan region, during 1978-85, the ratio of the agricultural labor force to the total rural labor force dropped from 76 % to 38 %. The total rural labor force increased by 340,000, but labor in farming decreased by 780,000. Most agricultural laborers were the aged, weak, female and children. In order to let workers attend to farming in the two busiest periods, the firms had to stop working half a month each time, their revenue being directly affected. (Qiu, Wei-Lian 1987: 28). In Lulong Town of Lulong County of Hebei

[10] Guangdong Province, near Hong Kong, is in the Central (costal) part of China.

Province, the family of Ji Shu-En had three members including one laborer, and contracted more than 3 mu (0.2 ha) of land. He was engaged in off-farm activities in the slack seasons and in farming only in the busy time. (Lu, Nong 1988: 42). The family of the head of the Industrial Company of Lianglukou Township of Shifang County of Sichuan Province had seven members, four in firms. With his wife of age over 50 and two children in home, they had to hire somebody for farming. In the busy spring season of 1987, they could find no body to be hired. Thus the transplanting for 2.8 mu (0.187 ha) of wet rice land was delayed by 10 days. (Zhou, Da-Fu 1987: 29)

Both off-farm work and farming increasingly require more knowledge of sciences and technology (recalling that technological progress also contributes to economic growth and is embodied in features 3-8 and 10-12). Objectively, it would be difficult for the part-time farmers to learn such knowledge in both jobs. Subjectively, they were not interested in learning more to improve farming beyond the goal of self-sufficiency.

Even worse, some farmers planted cash crops on their land to earn more money and purchased grain in quota from the market - at higher prices - to sell to the state - at lower prices, thereby creating a false output. Or they just paid cash equivalent to the gap between the quota price (lower) and state negotiable price (higher) of grain to fulfil the contract so as to save the cost of transporting grain back from the market (Zhu & Jiang 1993: 449). Others even refused to sell grain in quota or pay tax to the state at all (Qian; Shi & Xie 1996: 27). In Shifang County of Sichuan Province, 10 % of peasant households did not pay collective fees for common accumulation fund and common welfare fund in 1984. In 1985, this ratio increased to 30 %. (Ma, Bing-Quan 1988: 48)

Desolation of farmland. Further and worse, much farmland was partially or even completely desolated by part-time farmers and absentees, or occupied by new housing, or used for burial (Ran & Yang 1985: 15-16. Qin & Wang 1995: 42). Partial desolation (called careless farming) was dominant, because farmers feared that the villages would punish them by withdrawing land. Thus they either just planted crops, without taking care of them afterward; or grew a bit in the summer and a bit in the winter, pretending they were still tilling the land. (Ran & Yang 1985: 15)

For example, in 1984, in Langfang Prefecture of Hebei Province, 50 % of

land was operated by 50 % of peasants who were also engaged in 113,000 firms. In seven villages of Wen-an County, 20 % - 50 % of households were careless farmers. In some villages, more than 5 % of land was completely desolated. In Xinglonggong Township, nearly 10,000 mu (666.67 ha) of land was carelessly farmed, and over 2,000 mu (133.33 ha) desolated. Four of the seven villages paid cash equivalent to the gap between the quota price and the state negotiable price of grain to fulfil the contracts. (Cao & Liu 1987: 32, 36)

In 1986, in Jing-an Village of Lianglukou Township, there were 486 households, 1,677 people, and 1,006 laborers. 60 % of the labor force had shifted to off-farm activities, but the Equal Land System was still held, with 1.14 mu (0.076 ha) of farmland per capita. 10 % - 20 % of land were carelessly farmed, and over 3 mu (0.2 ha) desolated. (Zhou, Da-Fu 1987: 28-29)

Shipai Town of Zhongxiang County of Hubei Province[11] was famous for its bean curd. By 1988, of 8,829 peasant households, 1,800 had left in whole families for other places in bean curd business, but only 57 transferred whole of their land. 11,000 laborers, or 62.6 % of the total labor force had left the Town, but they only transferred 3,820 mu (254.67 ha), as 15.3 % of their contracted land. (Peng; Zhang & Yang 1988: 19)

In the winter of 1993, in Zhejiang Province[12], about 466,900 ha of farmland was made idle, and the multiple cropping ratio of grain dropped from 223.5 % in 1980 to 214.9 % in that year (Ding; Wei; Yang & Sang 1995: 23).

In Feidong County of Anhui Province[13], of the total labor force, more than 40 % went outside, 20 % were engaged in local off-farm activities, leaving less than 40 % in agriculture; of the whole farmland, 8 % or 6,700 ha were once idled. But during the major redistribution of land in 1994, many peasants who during several years had never returned home also came back to "contract" land. (Zhang & Hou 1995: 24)

Desire for more land by full-time and expert farmers. While the part-time farmers and absentees held land without efficient use, there were some full-time farmers who were good at farming and would like to contract more land. Even

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[11] Hubei Province is in the Central part of China.
[12] Zhejiang Province is in the Eastern part of China.
[13] Anhui Province is in the Central part of China.

in the areas where income from grain production was much lower than that from non-grain agriculture and off-farm activities, some farmers were willing to contract more land if the scale was large enough for them to earn an income equivalent to or higher than that from off-farm employment. (Gao & Liu 1984: 20. Yang, Wen-Bo 1995: 43). For example, in the above-mentioned questionnaire in Changshu City, 72.6 % of the 1,039 rural firm workers expressed willingness to till land if the income from farming rose to 3,000 yuan, or 125 % of the average net income per local household around 1990 [Jiang, Zhong-Yi et al 1992 (c): 77].

Possibility to transfer land by part-time farmers and absentees. As long as a back-up basic social welfare could be reserved/provided for them, many (but not all) of part-time farmers and absentees were willing to transfer their land partially or even wholly. Some of them have spontaneously done so.

For example, the family of Li Zheng-Xiang of Qianli Brigade of Caiji Commune of Quanjiao County of Chuxian Prefecture of Anhui Province had six members including two laborers in 1980. They contracted 10 mu (0.667 ha) of farmland from which they could earn a net annual income of 1,300 yuan only. They also raised 13 hives of bees. Because they could not manage both agriculture and apiculture, bees escaped eight times, causing a loss of 400 yuan. In 1981, they earned an income of over 2,000 yuan from raising 20 hives. In 1982, they raised more hives and income approached 4,000 yuan. Thus, they retained 4 mu (0.267 ha) as grain-rations land for self-sufficiency and returned 6 mu (0.4 ha) to the Production Team. (Qu; Chen & Bao 1982: 56-58)

Lack of mechanism. The Equal Land System lacked an effective mechanism to systemize and organize the transfer of land to full-time farmers.

For example, in 1982, in Zhongshan City of Guangdong Province, rural firms competed for labor, leaving the aged and female in farming. Peasants would rather transfer the land bearing contracts for grain, sugar cane and mulberry, and retain some land for self-sufficiency without obligations. Since there was no mechanism to organize it, in Beiqu Village of Xiaolan Town, of 190 mu (12.67 ha) of sugar cane land, 150 mu (10 ha) were desolated, 170 mu (11.33 ha) of mulberry fields were not fertilized, weeded or harvested. (GT 1988: 17)

By 1988, in Tielou Village of Guanyindang Town of Jiangling County of Hubei Province, 48 households had left to live in the nearby Town to earn higher

income from commerce and transportation. They wanted to transfer 1,000 mu (67 ha) of land but could find no villager to accept. (Peng; Zhang & Yang 1988: 19)

An obstacle. Therefore, in those areas (mainly Eastern and costal part) which had entered the high wage economy, the fragmented small farms had emerged as the last obstacle in sustainable rural development as early as at the beginning of the 1980s, just as in Japan at the beginning of the 1960s. In some Central and Western parts (e.g., Anhui and Sichuan Provinces), off-farm employment was not yet developed and the local economy has not reached the high wage stage. But many peasants there migrated to the Eastern and costal areas to earn higher income, while still holding land use contracts and leaving land resources wasted. (Yang, Yong-Zhe 1995: 217). For example, in Dachuan Prefecture of Sichuan Province, over 40 % of agricultural labor transferred to work in rural off-farm lines or to cities. In one county of this Prefecture, more than 800 ha of farmland were desolated. (Yang, Zuo-Hua 1995: 50). Where this has happened, the fragmented small farms became an obstacle together with other obstacles *even in the low wage economy.*

Thus while China required more grain to support its growing population and economy, much land was held by part-time farmers and absentees in inefficient use. This contributed to the exceeds of grain imports over exports in most years during 1982-95, as shown in Table 5.4 [During 1979-81, 15 million tn of grain were imported each year, but the trade balance data are unavailable (Chen, Yun 1978: 6. Wan, Li 1982: 135)]. This has in turn pushed up grain prices in the world markets and affected other, especially poor, grain importing countries.

Subsidies did not work. Facing the situation that the costs of grain production were increasing and that many peasants did not use their land efficiently, many rural areas where TVEs were developed diverted a part of their profits as direct subsidies to farming mainly in the form of a certain amount of money per mu[14]. This, however, did not stimulate the part-time farmers and

[14] The aim of subsidies to grain producing households was to raise their income near, equivalent to or higher than that of non-grain agriculture and off-farm workers. Direct subsidies were a certain amount of money directly paid to them. Indirect subsidies were expenditure on the indirect means, e.g., improvement of services, infrastructure, technology and purchase of machinery, to

absentees to invest and work more in land, but was used by them in consumption. Moreover, now that holding land itself could earn direct subsidies, their tendency to hold on to the land without transfer to full-time farmers was strengthened. At the same time, it seriously weakened the strength of the newly established TVEs. (Tao, Xiao-Yong 1986: 18, 61. Lin, Cong-Jun 1987: 18. Zhou, Xin-Jing 1988: 8)

Table 5.4 Years of Import Exceeding Export of Grain in China 1982-95 (1,000,000 tn)

Year	Export (mainly rice)	Import (mainly wheat, barley, maize, dried beans)	Import exceeding over export
1982	0.81	16.15	15.34
1983	1.15	13.53	12.38
1984	3.19	10.41	7.22
1985	9.33	5.97	
1986	9.42	7.73	
1987	7.37	16.28	8.91
1988	7.17	15.33	8.16
1989	6.56	16.58	10.02
1990	5.83	13.72	7.89
1991	10.86	13.45	2.59
1992	13.64	11.75	
1993	15.35	7.52	
1994	13.46	9.20	
1995	2.14	20.81	18.67

Sources: SYC 1984: 388, 393. SYC 1986: 487, 490. CSY 1988: 649, 652. CSY 1990: 608, 611. CSY 1992: 583, 586. SYC 1994: 515, 518. CSY 1996: 589, 592.

Conclusion. Therefore, a new round of institutional changes for a new land tenure system was called for, which should not only effectively expand farm size for full-time and expert farmers but also provide a back-up basic social welfare to those peasants who were or would be engaged mainly in non-grain agriculture

promote their competitive strength so as to earn a higher income through their own better performance.

and off-farm production.

Summary. Deng Xiao-Ping points out in 1990: "From a long-run point of view, there should be two leaps in the reform and development of China's socialist agriculture. *The first leap* was to abolish the people's communes, and implement the responsibility system mainly in the form of household contract with remuneration linked to output. This was a very big advance, and should be maintained for a long time. *The second leap* is to develop *appropriate economies of scale on land operation* and collective economy, according to the need of scientific cultivation and socialization of production. This is another very big advance, and of course, a very long process." (Deng, Xiao-Ping 1990)

As Howe correctly claims, during the economic reform, attention from the mid-1980s to the mid-1990s tended to focus on industry, foreign trade and foreign direct investment. There was a tendency to assume that food and agricultural problems were no longer serious. This was partly because the rise in Chinese incomes diverted demand away from grain; and partly because in the first phase of reform (1978-84), the agricultural sector did grow impressively. In recent years, however, the situation has become more serious. It is clear that the "once for all" gains from raising peasant incentives have been made and that the trajectory of production is being affected by lack of investment and other problems. In the "People's Daily" one can find stories about the shortage of rural labor, while there was also unemployment. The problem is that the right people with the appropriate skills are not where they are needed. Thus, the government is encouraging a further transformation of agriculture, this time toward large-scale farming rather than the small-scale one that produced positive results in the first phase of reform. This larger scale will be accompanied by improvements in water control, *greater mechanization* and a higher quality of managerial expertise. (Howe 1997: 222-223)

Theoretical Discussion

The theoretical discussion on the emergence of the fragmented small farms as the last obstacle to sustainable rural development imposed by the monsoon in Japan in Chapter 4 is also applicable in this context and therefore not repeated here.

However, one major difference between Japan and China is worthy of note. In Japan, there was a land holding ceiling until 1962, land rent control until 1970, tenancy protection from eviction (for long-term) until 1970 and (for short-term) until 1975 and 1980. Before such restrictions on market exchange were removed, the negative externality imposed by the part-time farmers and absentees was technological; and thereafter, pecuniary. But in China, voluntary transfer was allowed even at the beginning. Therefore, such an externality was immediately pecuniary.

Another major difference was that China, due to its large size, the regional difference in development was much more conspicuous than in Japan. In Japan, in the low wage economy stage, fragmented small farms could prosper. Only at the high wage economy stage, did they become an obstacle to sustainable rural development. When the whole of China was in the low wage economy, this farming structure also prospered. But once the Eastern part has entered the high wage economy, although the Central and Western areas still remained in the low wage economy, many peasants there already started to migrate to the Eastern part to earn higher income, leaving their land idle. Where this phenomenon has appeared, before the overcoming of other obstacles, the fragmented small farms already became an obstacle, earlier than in Japan. This is similar to Group 2 (especially Malaysia) reviewed in Chapter 4 where much rural labor force has abandoned backward agriculture to go to cities. Nevertheless, in the sense that the fragmented small farms, as long as they are tilled, could prosper while overcoming other obstacles in the low wage economy, they are still the last obstacle.

For eliminating the above-mentioned negative pecuniary externality in China, on one hand, free market forces or laisser-faire could not work, because voluntary land transfer by peasants themselves was not effective. On the other, any obligatory scheme of land transfer should provide peasants with a back-up basic social welfare, so that even in cases of closure of rural firms and economic contraction, peasants would not be squeezed out to city slums, but could always have a last resort of living in agriculture.

Thus, variable mixed economies (varying relations between the public and private sectors, and their dynamic change over time in relation to changing needs in economy and society, as reviewed in Chapter 2) should be adopted for reaching dynamic or long-term Pareto efficiency (as indicated in Chapter 3) not only in the

Eastern part where the fragmented small farms have become the last obstacle, but also in those Central and Western areas where they have become one of the obstacles.

III. A Large-Scale Farming and Collective-Individual Mixed Economy

This section is intended to show that large-scale farming could be achieved in a collective-individual mixed economy (different from the large-scale farming with the combination of public ownership and operation of land under the centrally planned economy which had failed). Since as early as the beginning of the 1980s, in those areas where the fragmented small farms had emerged as an obstacle, experiments on reaching *appropriate* economies of scale of land operation or large-scale farming had already been made and success achieved. "Appropriate" in this context meant to raise the scale gradually in accordance with the extent to which the surplus peasants were transferred to non-grain agriculture and off-farm lines, rather than squeezing out peasants who were still relying on land. Cases before 1985 will be cited in order to stress the much smoother transition in comparison with the slow progress in Japan.

There have been *four principal forms* in this new land tenure system.

Dual Land System (formal form)

Self-sufficiency land (grain-rations land) was equally contracted in compact form to households on a per capita basis for planting mainly grain for self-consumption. Contractors were required to pay either (1) both a contractual fee to the village and agricultural tax to the state, or (2) only a contractual fee (Wang & Ma 1990: 33), or (3) only an agricultural tax (CEST 1991: 33), or (4) no fee at all (Wang & Ma 1990: 33).

The use of self-sufficiency land was almost free of charge (as a basic social welfare) because the contractual fee and agricultural tax (if imposed on it) were low. In general, the higher the degree of development of the village's non-grain agriculture and off-farm lines, the less the payment required for using the self-sufficiency land.

Large-scale farming was not excluded on self-sufficiency land. For example, in 1987, 24 households in Yanhe Villagers Group (previously a production team) of Hujiadu Village of Yanqiao Township of Wuxi County of the Sunan region contracted their 72.5 mu (4.83 ha) of personal self-sufficiency land in compact form to four expert farmers to form a farm. All of the grain was sold to the village, which retained seeds for next year's production, then sold grain in self-sufficiency amounts to all the member households (including the four experts') at prices lower than the quota prices, and the rest to the state (the sale could be at negotiable prices). This revenue went to these experts. In so doing, although the 24 households had to buy grain, they could save time and energy to earn higher income in other jobs. (Hu; Yu et al 1988: 63). By 1995, some villages in Xishan City of the Sunan region had put self-sufficiency land together for large-scale farming as well (Lu; Gao & Li 1995).

Responsibility land was contracted also in compact form on the conditions of fulfilling output quotas of the state, paying agricultural tax to the state and all collective fees. The contractors could dispose of the surplus products on the market.

In general, the higher the degree of development of the village's non-grain agriculture and off-farm lines, the more competitive the distribution of the responsibility land. There were four basic categories.

Category 1: In areas where non-grain agriculture and off-farm employment were *little* developed and peasants almost completely relied on grain production for living, responsibility land was equally contracted to households on a *per capita* basis.

Under the Equal Land System, the increase of population was actually encouraged and led to land redistributions which made the land smaller and more fragmented, among the other problems already indicated above.

Under the Dual Land System, the contracted land of each household was divided into two. The increase of population of a household would lead to the deduction of its responsibility land but an increment of its self-sufficiency land (children born beyond the family planning limit were not taken into account). The decrease would lead to the increment of its responsibility land but deduction of its self-sufficiency land. Thus, as the family size changed, the area and location of the household's land kept the same, only the proportion of the two kinds of

land was changed on the account. This was called *the Dual Land on Account System*. Households were thus encouraged to produce less children in order to get more responsibility land within their total contracted land so that they could produce more to sell in the market at higher prices. The economies of scale of land would at least not be lowered due to further smallness and fragmentation and may even be raised. (Wang & Ma 1990: 34)

Category 2: In areas where non-grain agriculture and off-farm employment were *modestly* developed, responsibility land was equally contracted to every *labor force*. Here, some laborers already worked in non-grain agriculture and off-farm lines. But jobs there were not secure, so that they were not yet willing to transfer their responsibility land. Such areas were richer than those in Category 1, thus non-laborers (the old, children, etc.) were only entitled to self-sufficiency land but not to responsibility land so as to make the use of the latter more efficient. As the responsibility land was distributed among less people, each laborer could equally get more land so that the economies of scale were raised. (Wang & Ma 1990: 34)

Some villages set up a reserve land for both overall rural development and newly increased population. To those households without laborers, if the population grew and their self-sufficiency land was not enough, a part of the reserve land could be given to the new population. (Zhang; Liu & Zhang 1989: 34-36). To those households with laborers, the "Dual Land on Account System" was also applied.

Category 3: In areas where non-grain agriculture and off-farm employment were *fairly* developed, responsibility land was equally contracted to every *agricultural* labor force (for grain production). That means those laborers having left grain agriculture but still holding their permanent residence in the village were no more entitled to responsibility land, although still to self-sufficiency land. (Those who had got permanent city residence were obviously not entitled to either self-sufficiency land or responsibility land.) Because only the remaining agricultural labor force could equally contract more land, the economies of scale were further raised. (Wang & Ma 1990: 34)

Here, for adjusting the ratio of self-sufficiency land to responsibility land of the households of agricultural labor force, the Dual Land on Account System could still be applied. To the households of non-grain agriculture and off-farm

laborers, if their self-sufficiency land was not enough due to population growth, a part of the reserve land could be given.

Category 4: In areas where non-grain agriculture and off-farm employment were *highly* developed, responsibility land was contracted to agricultural labor (for grain production) by *competition* of bidding. Here, because many peasants would like to concentrate on non-grain agriculture and off-farm lines to earn more income, it was possible for villages to contract the responsibility land to *expert* farmers. Only those who bid higher output could win the contract. The division of land was according to its suitability to a specific product (rice, cotton, etc.). Expert farmers, who could also be non-villagers, were given land according to their relevant expertise and ability. Economies of scale of land were highly raised.

As the villages became rich, they could provide the newly increased population with food at quota prices, rather than giving them self-sufficiency land.

This was regarded as the optimal standard Dual Land System, for the self-sufficiency land was distributed equally as a back-up basic social welfare, but responsibility land was contracted through competition of bidding (Wang & Ma 1990: 33-34). It combined both competition and cohesion.

For example, in 1982, Changyuan Brigade of Linxiang County of Hunan Province[15] arranged 27 households which were competent and active at non-grain agriculture and off-farm lines to till self-sufficiency land only, and 138 households which were good at farming to produce grain on responsibility land (RO 1984: 14).

Rural industry in the Sunan region started a long time before the economic reform and developed much faster after the reform. The implementation of the Household Contract System was completed with the Dual Land System in the preliminary form in 1983. The average area of household contracted land was 2-3 mu (0.13-0.2 ha) but divided into 7-8 parcels, forming various individual farming units (RT 1991: 23). In 1987, an able-bodied laborer was sufficient for operating a 4-mu (0.26 ha) farm earning 600 yuan, much lower than the annual per capita income of 853 yuan and that in rural industry of 1,000 yuan (Fei, Xiao-Tong 1990: 5). Peasants swarmed to non-grain agriculture and off-farm lines but were not yet willing to transfer all of their contracted land. Thus, since 1983, the

[15] Hunan Province is in the Central part of China.

preliminary form was gradually transformed toward the standard form.

For example, in Wuxi County, in the autumn of 1983, an expert household contracted 22.56 mu (1.504 ha) of land in Dongge Town; in the spring of 1984, 529 mu (35.267 ha) or 77.8 % of the total responsibility land in Rongnan Village of Yuqi Town were contracted to 70 laborers of 60 households, raising contracted land area per laborer from 1.16 mu (0.077 ha) to 7.56 mu (0.504 ha) and that per household from 1.57 mu (0.105 ha) to 8.8 mu (0.586 ha). In 1986, 386 mu (25.73 ha) or 77.8 % of the total cultivated land of Yuanhe Village of Qinnan Township of Changshu City were contracted to 19 agricultural labor force, with contracted land area per laborer as 20.3 mu (1.353 ha); in Wuxi and Wu counties, 115 households contracted 15-20 mu (1-1.33 ha) each, and 75 households contracted more than 20 mu (1.33 ha) each.

In 1986, in Wuxi County, the number of farming units contracting more than 5 mu (0.333 ha) was 4,080, holding totally 28,800 mu (1,920 ha) or 11.09 % of the total responsibility land of the County. In 1989, this number reduced to 3,820, holding totally 34,600 mu (2,306.67 ha) or 13.8 %; within this group, 6.5 % or 248 farming units contracted more than 15 mu (1 ha) each, holding in total 9,260 mu (617.3 ha) or 26.6 % of the total responsibility land of the group. In 1989, in Suzhou City, there were 970 farming units each contracting over 15 mu (1 ha) and in total 43,300 mu (2,886.67 ha) or 3.6 % of all responsibility land of the City. (RT 1991: 23)

In 1989, Changshu City transformed the preliminary Dual Land System into a *mixture of categories 2, 3 and 4* of the formal Dual Land System. Self-sufficiency land was assigned as per capita 0.5 mu (0.03 ha); the average area of responsibility land was 1.88 mu (0.125 ha) per laborer, which was not given to those who had secured off-farm jobs, but 50 % - 100 % of which could be distributed to those who had not yet secured such jobs, an area larger than which was allocated to the expert farmers via bidding (non-villagers were included with priority to villagers). By the end of the year, 11,046.4 mu (736.43 ha) or 1.06 % of the total farmland had been contracted to 536 expert farmers to form 190 large-scale farms [according to the criterion of minimum area of 15 mu (1 ha) per laborer], with 20.7 mu (1.38 ha) per laborer as 11 times the average, and the largest over 50 mu (3.33 ha) per household. [Jiang, Zhong-Yi et al 1992 (c): 74-76, 80]

Table 5.5 Area under the Dual Land System in China 1990-94 (1,000,000 ha)

	1990	Of total household contracted land	1994	Of total household contracted land
Country	37	38.2 %	42	47.8 %
Eastern	15	n.a.	14	n.a.
Central	16	n.a.	20	n.a.
Western	5	n.a.	7	n.a.

Sources: CEST 1991: 34. CEST 1996: 39.

Table 5.6 Areas of Self-Sufficiency Land and Responsibility Land under the Dual Land System in China 1990-94 (1,000,000 ha)

1990			1994		
Self-sufficiency land	Responsibility land	S:R	Self-sufficiency land	Responsibility land	S:R
18	36	1:2	13	29	1:2.23

Sources: CEST 1991: 33. CEST 1996: 39.

Table 5.7 Methods of Contracting Responsibility Land under the Dual Land System in China 1990-94 (1,000,000 ha)

Per capita				Per laborer				Bidding			
Area		%		Area		%		Area		%	
'90	'94	'90	'94	'90	'94	'90	'94	'90	'94	'90	'94
16	19	64	68	7	8	30	25	1	2	6	7

Sources: CEST 1991: 34. CEST 1996: 39.

During 1990-94, both the area under the Dual Land System and its percentage in the total household contracted land in China rose, and this system was also adopted in the Western part where non-grain agriculture and off-farm production were less developed than in the Eastern and Central parts, as Table 5.5 shows. As revealed in Table 5.6, the area of self-sufficiency land decreased, and that of responsibility land increased, leading to a lower ratio of self-sufficiency land to responsibility land, and implying that land was more efficiently used.

Table 5.7 further indicates that, regarding the methods of contracting responsibility land under the Dual Land System, the area on a per capita basis expanded while that on a per laborer basis reduced, suggesting not only the population pressure on land, but also an increase in bidding and more market competition.

Active education of villagers was necessary since their majority agreement was needed to implement the Dual Land System [Jiang, Zhong-Yi et al 1992 (b): 68].

For example, three villages in Wu County (Wuxian) of the Sunan region began to establish large-scale farming in 1987 and 1988. The village leaders started it by talking with the villagers about the importance of large-scale farming. At least some villagers openly opposed it in all the three villages. In village 1, only one or two households did so because they would lose responsibility land, but the leaders obliged them to give it up with the rest of the villagers. In village 2, many were against it but were persuaded to accept it. In village 3, opposition was stronger and initially only 15 % of the farmers gave up their responsibility land. In this case, a gradual approach was adopted. The leaders then took back all the arable land and divided it into two consolidated portions for self-sufficiency land and responsibility land respectively. Self-sufficiency land was allocated in one consolidated parcel to households on a per capita basis by drawing lots. The responsibility land was distributed to large-scale farmers immediately in villages 1 and 2 in 1987 or 1988, but gradually over the following years in village 3 as other farmers also gave up responsibility land voluntarily or under collective persuasion. (Prosterman; Hanstad & Li July 1996: 15-16)

Leasing System

The village may also lease land in compact form to expert farmers via bidding for higher monetary rent, which was different from contracting output. However, such a leasing still stipulated that the lessees should produce a certain type and amount of products (e.g., grain) and the village had the duty to provide services, hence a kind of village-household dual-level operation of land. This was distinctive from typical leasing for monetary rent under which the lessees may produce whatever they wish and the lessor did not have the duty to provide services. A village usually leased its reserve land, although some other land might

also take this form. Here, the land under leasing was also a kind of responsibility land, hence a special form under the Dual Land System.

For example, Bai Village of Baicun Township of Dingxiang County of Shanxi Province had 3,073 mu (204.87 ha) of farmland. It reserved 112 mu (7.47 ha) of saline-alkali land for leasing to produce sorghum in the mid-1980s. The contract was for one year and renewable. The rent was 8,000 yuan in total, 71.43 yuan per mu in 1987, but raised in 1988 to 11,000 yuan, 98.21 yuan per mu, by bidding among six farmers representing 20 households. (Wu; Xu; Tian & Bai 1988: 36-38)

In contrast, Yujiazhuang Village of Shoulu Township of the above County had finished its reserve land. It then divided all land into five classes according to productivity, and leased 290 mu (19.33 ha) of the highest class to expert households with more labor to produce grain, the rent being 80-100 yuan. (Wu; Xu; Tian & Bai 1988: 37)

Single Land System

In areas where non-grain agriculture and off-farm production were *very highly* developed, many peasants secured their jobs there, and were not only *voluntary* but also felt *imperative* to formally transfer both their self-sufficiency land and responsibility land to expert farmers. They thereby left (grain) agriculture although most of them still lived in rural areas, even in the same villages. Their voluntary was, however, also based on the active promotion of the villages, which sold them grain for self-consumption at fair prices and might also allow them to keep some family plots for producing vegetables to accommodate the peasant tradition of not buying them on the market. These measures were both an incentive for them to hand in land and a basic social welfare. The expert farmers could operate land much larger than under Dual Land System, upon which they should fulfil tasks for the state and collective and could then dispose the residual for their own living and in the market. There was no more division between self-sufficiency land and responsibility land. "Dual Land" became "Single Land". (Wang & Ma 1990: 36). The single land could also be either contracted for output, or leased for monetary rent, via bidding to expert farmers.

In the above-cited example in Wu County (Wuxian) of the Sunan region

which started the Dual Land System in 1987 or 1988, some farmers then voluntarily gave up their self-sufficiency land for allocation to large-scale farmers in all the three villages. In one village, about 20 % of households did so. Two villages offered 450 kg of paddy rice per year at about 50 % of the market price for each mu of self-sufficiency land given up by households. (Prosterman; Hanstad & Li July 1996: 16)

By 1988, in the Sunan region, some other villages, even townships, had gathered all their land to be contracted through bidding to a number of expert farmers (Fei, Xiao-Tong 1990: 6).

The Dual Land System started in Qianzhou Village of Qianzhou Town of Xishan City of the Sunan region at the end of the 1980s. As off-farm employment quickly developed, it became no more suitable, since rural firms had to close for half a month in each of the two busiest farming periods, thus seriously affecting their business. In a referendum of 1991, all villagers unanimously agreed to give up self-sufficiency land. Thus, all the land of the Village was gathered to form a collective farm, which contracted land to seven member households, on the conditions of selling 575 kg of rice and 125 kg of wheat per mu at quota prices each year to the Village and being able to dispose of the residuals. The Village then sold grain to the state according to quotas and 147 kg of rice and 28 kg of wheat to each of the other villagers at prices even lower than the state-subsidized prices to city residents. Then, Mixiangqiao Village and Lidong Village of Dongxiang Town, Tan Village of Chaqiao Town and Taoshu Village of Xuelang Town also adopted the Single Land System. As a result, rural firms now could shorten the closing time by a big margin and even to zero. Unified seed supply, plant protection and agricultural mechanization were achieved and high-yielding varieties and advanced technologies introduced, in which Qianzhou Village became a demonstration village in the Town. The net income of farming households (whose laborers were usually husband and wife) in Mixiangqiao Village reached 22,000-25,000 yuan, 100 % higher than that of households at off-farm lines. (Lu; Li & Zou 1996)

In the areas where local off-farm activities were very highly developed, the Single Land System could also be set up directly upon the abolition of the Equal Land System.

For example, Matou Village was in the suburbs of Zhongshan City of

Guangdong Province. In 1984, it had 60 households, 170 laborers, 132 mu (8.8 ha) of land for grain, 38 mu (2.53 ha) for vegetables, 8.4 mu (0.56 ha) for fishery and 40 mu (2.67 ha) for fruit trees. The local industry and services were very highly developed and could absorb all the surplus labor force, but peasants were still unwilling to transfer their farmland. The Village then changed the Equal Land System directly to the Single Land System by assigning all land to expert farmer Huang Zhi-Hua's household, and achieved the agreement of other households by offering to sell them grain at fair prices, and allowing them to keep some family plots for producing self-consumed vegetables. Huang Zhi-Hua was to hand in 600 kg of grain per mu (0.067 ha) to the Village which then fulfilled its obligations to the state and sold grain to other villagers for self-consumption. Huang could dispose of the surplus as he chose. (Lu & Li 1987: 33)

Shunyi County of Beijing Municipality[16] started the Equal Land System at the end of 1983 with contracts for three years [but some villages implemented the preliminary Dual Land System in 1985 (Zhong & Cai 1997: 54)], each household operating 3-5 mu (0.2-0.3 ha) of fragmented land. Although over 70 % of the rural labor force shifted to non-grain agriculture and off-farm production, personal transfer of land was scarce. It diverted profits of TVEs to subsidize costs on grain production of all peasant households, 50 yuan per mu per annum, but the money was simply used on consumption and little output was stimulated. Thus, in the autumn of 1986, taking the chance of renewing the contracts, it implemented the Single Land System. It first made experiments in the developed areas during Aug. 1986 - Aug. 1987, then popularized this in most other areas of the County by the autumn of 1989. New contracts were not given to those who had got stable jobs and income from non-grain agriculture and off-farm production, or been engaged in house work by a long time, or unable to till land. Those who were not good at grain-production but had not yet got other stable jobs were either recruited into TVEs, or into activities in diversified cropping and non-crop agriculture (for vegetables, fruits, fish, oxen, chickens, pigs, etc.) newly created for them by the special investment of townships and villages. Those part-time farmers who were neither active for grain production nor willing to give up land were required to meet conditions for carrying out large-scale farming. As a

[16] Beijing is in the Eastern Part of China.

result, those who could not do so voluntarily handed land back. More than enough grain was guaranteed to be sold at prices lower than the market levels to those laborers who were no more engaged in grain production and their family members for self-consumption. Direct subsidies were abolished. Land for grain production was successfully transferred to the expert farmers who earned higher income not through direct subsidies but by their own economic performance. (Pei, Chang-Hong et al 1992: 87-89, 92)

However, in general, the Dual Land System was a transitory stage between the Equal Land System and the Single Land System, as rural industrialization proceeded and could absorb more and more surplus labor force. Surpassing this stage might not be viable. For example, in 1984, Zijing Village of Jiangling County of Hubei Province established three companies, each for agriculture, industry, livestock and fish farming respectively and each took about one third of the total labor force. It implemented the Single Land System by subsidizing those who left land to buy grain at market prices and those who contracted larger land with the profits of village enterprises 41,000 yuan per year. Thus 77 % of over 400 laborers completely left the land, and farmland per laborer was expanded from 3.8 mu (0.25 ha) to 16.5 mu (1.1 ha). In order to get more direct subsidies, some households contracted 60-100 mu (4-6.67 ha) of land, 30 mu (2 ha) per laborer, exceeding their operating ability. In 1986, however, two major enterprises were closed due to unprofitability and other enterprises had to rationalize. Thus, on one hand, half of the workers became surplus and had to return to agriculture; on the other, an end of subsidies from the enterprises made farmers unable to maintain large-scale farming. In 1987, the Village had changed to the Dual Land System, which proved to be suitable. (Li, Wan-Dao 1988: 57-58. Peng; Zhang & Yang 1988: 17-18)

By 1996, the Single Land System was still not widespread in the whole country.

Corporate-Holding System

The *typical form* of the Corporate-Holding System was that households transferred their land contracted under the Equal Land System to the village in exchange for land shares. The village, as a collective corporation, contracted land

through bidding in compact form to expert farmers who were to fulfil tasks for the state and collective and could dispose the surplus products. The village then distributed a part of the revenue to land share-holders as dividends. The village also sold grain at fair prices, and gave some family plots for producing vegetables to ordinary households for self-consumption. These households could concentrate on non-grain agriculture and off-farm activities. Land share-holders could not withdraw land physically from the village but could transfer (including bequeathing) the shares in financial form. The change of family size of the land share-holders could not affect their number of shares so that more births were not encouraged, but discouraged. (Chen, Dong-Qiang 1996: 23-24)

This was similar to the functions of a modern capital share-holding corporation whose share-holders can earn dividends and sell shares in the market but cannot reimburse them from the corporation (as already analyzed in my Proposal 1 for Japan in Chapter 4). The major difference between the Chinese system and my proposed system for Japan is that, under the former, land is collectively owned but was previously contracted to households equally, hence the title Corporate-*Holding* System, while under the latter, land is privately owned, hence Corporate-*Ownership* System.

For example, Shatou Village of Jun-an Town of Shunde County of Guangdong Province initially contracted a farmland of 460 mu (30.67 ha) equally to over 600 households, each holding about 0.767 mu (0.051 ha), yielding sugar cane per mu only 2-3 tn. At the beginning of 1986, in response to popular demand, the Village took back the land, invested 210,000 yuan and assigned special farmers to plant litchi (a fruit). In the same year, the revenue from the intercrops[17] already reached 210,000 yuan, over twice the previous income of sugar cane. In the harvesting year of litchi, the land would be contracted to expert farmers via bidding. A part of the revenue was to be distributed to the original households according to their previously contracted areas. (Lu & Li 1987: 34)

Although this example was about fruit production, the same approach was applicable to grain. For instance, by 1995, 70 % of peasants in Nanhai City of

[17] Intercrops are two or more crops planted at regular intervals in the same field, so as to make use of positive externalities between them and use land more efficiently. For example, one or two drills of green gram can be planted between each two drills of maize.

Guangdong Province had given up their contracted land, accounting for about 45 % of the total contracted land, to the villages to be contracted to expert farmers, in exchange for revenue (dividends) to their land shares (PD 1995). The expert farmers who contracted larger land could earn an income higher than that of the off-farm workers (Yang, Yong-Zhe 1995: 16).

Inverse Leasing or Contracting (fan zu dao bao) as *untypical form*. The original contractors under the Equal Land System leased/contracted their land to the village which paid rent or gave grain for self-consumption to them, and then

Table 5.8 Progress in Overcoming Fragmentation in China 1986-92 *

Whole country	Area contracted per household (ha)	No. of parcels contracted per household	Area per parcel (ha)
1986	0.466	5.85	0.08
1988	0.446	5.67	0.079
1990	0.42	5.52	0.076
1992	0.466	*3.16*	*0.147*
Eastern			
1986	0.333	5.32	0.063
1988	0.32	5.19	0.062
1990	0.306	5.03	0.061
1992	0.333	*3.35*	*0.099*
Central			
1986	0.666	5.20	0.128
1988	0.653	5.07	0.129
1990	0.62	4.70	0.132
1992	0.806	*4.58*	*0.176*
Western			
1986	0.8	7.60	0.105
1988	0.706	7.10	0.099
1990	0.646	6.80	0.095
1992	0.466	*2.15*	*0.217*

* Samples from 7,983 Villages of over 200 Counties in 29 Provinces, Municipalities and Autonomous Regions (without Tibet and Taiwan).
Source: CEST 1993: 48.

Table 5.9 Land Contracted per Individual Household in China 1986-92 (in percentage) *

Country	%	Under 0.333 ha	0.4-0.666 ha	0.73 3-1 ha	1.066-1.333 ha	1.4-3.33 ha	3.4 ha and over
1986		51.1					
1988		52.7					
1990		54.2					
1992	100	*48.0*	31.2	11.3	5.7	3.4	0.4
Eastern							
1986		61.7					
1988		65.4					
1990		66.2					
1992	100	*60.4*	25.2	10.4	3.3	0.6	0.1
Central							
1986		30.8					
1988		38.0					
1990		40.4					
1992	100	*26.1*	44.7	12.0	8.2	7.8	1.2
Western							
1986		51.7					
1988		50.4					
1990		51.8					
1992	100	*42.9*	32.7	12.0	7.4	4.8	0.2

* Samples from 7,983 Villages of over 200 Counties in 29 Provinces, Municipalities and Autonomous Regions (without Tibet and Taiwan).
Source: CEST 1993: 47.

leased/contracted the land in compact form to expert farmers for large-scale farming. Since in so doing it was the original contractors who leased/contracted their land to the village, it was called Inverse Leasing or Contracting. (Chen, Dong-Qiang 1996: 24). It may be regarded as an *untypical form* of the Corporate-Holding System, because the rent - or grain for self-consumption - the village gave to the original contractors would be a part of the gross revenue of the new

lessees/contractors as large-scale farmers, just as dividends for land shares under the typical form. It has been implemented in Leqing City and other areas of Zhejiang Province, Linquan County of Fuyang Prefecture and Dawang Town of Nanqiao District of Chuzhou City of Anhui Province (Wu & Hu 1995: 43. Huang; Xu; Zhang & Ni 1996: 60. Qin & Wang 1995: 43. Fan & Zhou 1994: 16).

The Corporate-Holding System is actually also a kind of Single Land System (although a special one) and its implementation requires a high development of rural industrialization to absorb surplus labor. Thus, relatively fewer regions have adopted it.

Table 5.8 shows that during 1986-90, the fragmentation of small farms worsened, except for Central China. But, as a result of implementing the above forms of large-scale farming, it has improved in 1990-92, as the number of parcels per household was reduced and the area per parcel enlarged. Similarly, Table 5.9 indicates that the percentage of the smallest-scale farms (under 0.333 ha) in land contracted per individual household increased during 1986-90, but decreased in 1990-92.

Selection of Expert Farmers

It has been mentioned in the above that the selection of expert farmers to be large-scale farmers was through bidding. Here are some specific aspects of this mechanism. Chapter 2 already indicated that as a result of development of some 40 centuries, farmers in monsoon Asia have mastered sophisticated intensive farming techniques, even if they might not have attended formal schools, although schooling is important. Villagers normally know who are expert farmers and who are not. The process of bidding to fulfil contracts also helps to identify expertise. The more competent can contract more land. Priority was given to villagers, but non-villagers could also be taken.

The conditions of contracts stipulated not only the output and varieties of grain and other products to be fulfilled for the state and village, but also the maintenance and improvement of land quality.

For example, in 1983, seeing the reduction of agriculture due to the development of off-farm activities, Zhangjiabian Town of Zhongshan City of Guangdong Province made an investigation. 90 % of peasants were only willing

to keep a small amount of land. Thus, it called for bidding for contracting 56,000 mu (3,733.33 ha) of land of grain and sugar cane. The amount of land was according to the ability and willingness of bidders. Due to shortage of local agricultural labor, 16,000 mu (1,066.67 ha) were not taken up. It called for further bidding by outsiders, and 223 outside expert farmers contracted them. The largest contracted area by one household was 448 mu (29.87 ha), and the smallest 30 mu (2 ha). (GT 1988: 18)

In order to avoid re-creating fragmented small farms, Nanwen Village of Dayong Town in the same region and same period stipulated in bidding that the smallest area for contract was 10 mu (0.67 ha), but several households could make a joint bid (GT 1988: 18).

The conditions for expert farmers to contract responsibility land under the Dual Land System since 1985 in Luyang Town of Kunshan County of Suzhou City were being able-bodied; with a certain educational level, scientific and technological knowledge, and practical experiences; fond of farming, competent in operation, good at management, and hardworking. In 1986, the candidates were selected first by groups and villages, then decided by the CPC Committee of the Town. Compared with heads of the 29 households in 1985, of those of the 40 selected in 1986, 70 % were under 40 years old, 12 % higher than in 1985; 32.5 % received education at junior middle school and over, 1.5 % higher; 52 % were former production team directors, or accountants, or agricultural technicians, or mechanics, 1 % higher. (Shi & Zhang 1987: 24). In 1993, facing the situation that the popularization rate of senior middle schooling was only 15.36 %, and solely 42.41 % of labor force received education of junior middle school and over in the rural areas of six counties and cities within the jurisdiction of Suzhou City, the governments stipulated that new contractors must receive special training and get a "Green Certificate" (eligibility to be farmers). Thus, training and lectures on technologies and policies have been regularly held by relevant government organs, grain administrations, machinery and electricity stations, credit cooperatives, supply and marketing cooperatives, etc. for large-scale farmers. Associations of large-scale farmers also periodically organized live demonstrations and exchanges of experiences. (Sun, Yong-Zheng 1996: 24)

The length of contracts. The contracts could be for one to 10 years and renewable (Prosterman; Hanstad & Li July 1996: 25). Although the state

stipulated in 1984 that the length was 15 years and in 1993 30, local officials normally preferred a shorter period, so that they could use the renewal as an incentive to the contractors. The contract could be either stopped or disrenewed, and the contractor would even be punished, if not due to natural disasters, the farming season were missed, field desolated, land quality reduced, superior varieties mixed with the inferior and degraded, and the contract therefore not fulfilled (Shen, Shou-Ye 1987: 32).

Attention has to be paid to the possibility that short-term contracts may affect the incentive of the contractors for long-term improvements to the land. However, there were offsetting factors. (1) Because the contract was renewable, the incentive of the present contractor might be stimulated so as to earn a good reputation and win the next contract. This was different from the situation under the Equal Land System in which the actual short period of contract discouraged long-term investment, because the parcels might certainly be redistributed to others due to population change, rather than being kept or renewed. (2) In order to win the next contract, the present contractor and his competitors must bid for higher output, or rent, by better measures conducive to land fertility, and, once won, implement them. (3) The basic requirement to the contractors was that the land fertility should not be reduced. This could be disciplined even by a short-term contract and thus provided the basis for the long-term use of the land. Then, for large long-term infrastructure construction, the village may rely on TVEs for their financial strength and collectively mobilizing and organizing peasants, more than on the individual contractors whose financial and physical abilities were weak. The village could also invest the revenue (or rent) paid by the winner in long-term improvements to the land. Actually, even large-scale farms in monsoon Asia are quite tiny compared with those in Europe and the US. Investment by a farmer, no matter how long the term is, is not beyond his land. Construction of infrastructure covering the whole village would have to rely on the collective action. (4) If the winner were not able to operate a large land unit as he had expected, he would not be obliged to hold the contract for too long. (5) A short-term contract to be won via bidding would also be helpful to control corruption of village officials who might have interest in giving a long-term contract to a relative/friend even if his performance could not justify it. (6) How long a contract should be is not yet concluded but still being tried through active local

experiments. If short-term contracts were indeed harmful, local officials/peasants would have interest in prolonging them.

For instance, in the above-mentioned one-year lease of 112 mu (7.47 ha) of saline-alkali land of Bai Village of Baicun Township of Dingxiang County of Shanxi Province, in 1987, one of the lessees, Gao Wan-Nian, operated 56 mu (3.73 ha), applied 50 kg of chemical fertilizer and one cart of superior chicken manure per mu, and reached a sorghum yield of 375 kg per mu, or 2.5 times the 1982 level. In 1988, four households of Gao Gui-Lan et al won the contract and immediately renovated the land. They decided to build a ditch of 112 m to transform it into an irrigated land, apply chemical fertilizer 100 kg and farm manure 50 kg per mu, so as to raise the yield to 500 kg per mu. (Wu; Xu; Tian & Bai 1988: 38)

Yang Town of Shunyi County of Beijing implemented the preliminary Dual Land System in 1985. In changing to the Single Land System in 1986, its Tianjiayin Village first introduced in a *one-year* lease system via bidding. Its success made it possible for the Town in the early 1990s and County in 1995 to popularize it in suitable villages. By 1996, of the total 27 villages of the Town, 21 adopted it on 26,000 mu (1,733.3 ha), or 65 % of 40,000 mu (2,666.7 ha) of the total grain land of the Town. (Zhong & Cai 1997: 54-56)

In their practices, bidding was called for every year on Aug. 18. Grain land was divided into compact units of 7 mu (0.467 ha), 15 mu (1 ha) or 30 mu (2 ha) depending on different villages. According to the quality and distance, a bottom contract fee (or rent), 100-200 yuan per mu, to each unit was announced three days earlier. A bidder could be one or several households, and, in order to bid, should pay a deposit of 300-500 yuan, which would not be reimbursed if the bidder failed to till the land after winning the contract. The units were contracted to the bidders offering the highest contract fees. About 60 % - 70 % of households could get land, the rest would seek other jobs or be arranged to firms by the villages. (Zhong & Cai 1997: 55)

The contractors should pay the contract fee (on average 265 yuan per mu), deposit for selling output in quota (30 yuan per mu), production costs on unified collective services for seeds, fertilizer, pesticide, machinery, ploughing, irrigating, harvesting, land clearing, etc. (90 yuan per mu) within two days after winning the contracts, and would bear the economic results after fulfilling them. Because some

385 yuan were already inputted, contractors naturally had the incentives of not to lose but to gain, which promoted them to learn and apply more science and technology, carry out intensive farming and make more investment. As a result, there was indeed surplus. For example, in 1996, the average yield of grain was 750 kg (twice cropping), gross income 1,100 yuan, and net income 500-600 yuan for each mu. More than 10 years of experiences have shown that not only no short-term or predatory behavior occurred, but also, to the contrary, more land was efficiently used. For example, in 1987, Tianjiayin Village still had 400 mu (26.67 ha) of waste land, which were then all turned to farmland via bidding for the one-year contracts. Agriculture was further strengthened by the village collectives through feeding back the contract fees. By 1996, the collectives of the Town owned 406 motor-pumped wells, 168 sets of spraying irrigation facilities, 23,808 kilowatt of agricultural machinery power, 0.59 kilowatt per mu of grain land, which had cost investment of over 45,000,000 yuan, mainly from the contract fees. The collective water, electricity and machinery services charged less fees. For example, in Tianjiayin Village, the cost of irrigating one mu of land was 20 yuan, but the collective only charged 10 yuan, the rest being borne by the contract fees. Hence "from the peasants and to the peasants". (Zhong & Cai 1997: 55-56)

Major Problems

The major problems discussed in this context concern the process of promoting the new land tenure system, rather than concerning all aspects of agricultural and rural development of China.

There have been both the problems of not promoting large-scale farming where land was already inefficiently used by part-time farmers and absentees, *and* of promoting it prematurely. While in the early 1980s, the former was the main problem (Gao & Liu 1984: 21), in the 1990s, the latter outweighed it.

For example, in many areas where rural firms could not yet absorb enough peasants, quite a few villages, under the excuse of "introducing market mechanism", without the majority agreement of villagers, have enforced category 4 of the Dual Land System by reducing self-sufficiency land and enlarging responsibility land, and allocating the latter through bidding, so as to charge more village

drawn fees. Those peasants who could neither win responsibility land nor find jobs in other lines had to subsist on the tiny self-sufficiency land. Hence the strong resentment. (CEST 1993: 46. CEST 1996: 39)

One extreme case was reported. Hougu Village of Shendan Town of Dengta County of Liaoyang City of Liaoning Province[18] had 2,100 persons and 5,028 mu (335.3 ha) of farmland. In 1983, each household contracted land and had become well-off since. In 1993, however, despite the requirement of further prolonging contracts by the central government, the Village, without seeking the agreement of peasants, took back all the land and implemented a mixture of partial Dual Land System and partial Single Land System. Only 28 peasants got self-sufficiency land, while a few farmers contracted all the responsibility land, as decided by the leader personally. The contract fee per mu for self-sufficiency land and dry land was as high as 120-130 yuan, while that for the profitable wet land only 40 yuan. Most peasants had no land to till, and had to sub-lease land from these "large-scale farmers" with high rent, or rent land in other villages, or do odd jobs, resulting in the decline of their living standard year after year. (LD 1996). In this case, corruption might be involved.

Such wrong doings attracted the attention of the media. The government has repeatedly stressed the *appropriateness* in promoting large-scale farming following the degree to which peasants have found jobs in other lines, established new regulations and laws and launched campaigns to combat corruptions. For example, on July 7, 1997, Vice Premier Zhu Rong-Ji publicly required provincial leaders to stop the wrong practices in some rural areas of withdrawing the responsibility land from peasants and re-distributing it via bidding for the purpose of charging high contract fees, regardless whether surplus peasants could find other jobs or not, thus increasing financial burdens of peasants. (Zhu, Rong-Ji 1997)

Trend of the Evolution of Land Tenure System

The trend of the evolution of the land tenure toward overcoming the fragmented small farms as the last obstacle imposed by the monsoon in China may be from the Equal Land System, through the Dual Land System (including

[18] Liaoning Province is in the Northeast part of China.

Leasing System), toward the Single Land System (including Leasing System and Corporate-Holding System). The necessary condition is the development of rural industrialization which can absorb surplus peasants. The Dual Land System is more significant, since the back-up basic social welfare it provides to peasants does not need them to buy grain for self-consumption, while that provided by the Single Land System requires them to buy it although at prices under the market levels. Meanwhile, it could also raise economies of scale of land even in the areas where rural non-grain agriculture and off-farm activities are less developed. Thus it would be more suitable to China and would last for a longer time.

At the beginning of the 1980s, the state already raised the issue of promoting appropriate large-scale farming wherever relevant conditions were ripe (Yang, Yong-Zhe 1995: 17). In 1982 and 83, the state and Deng Xiao-Ping himself supported the emerging large household contractors (CPC 1982: 169. Deng, Xiao-Ping 1983: 184). In 1984, the state called on the concentration of land toward the expert farmers (CPC 1984: 224). Practices across the country have shown that the *ideal* conditions for appropriate large-scale farming by expert farmers (as category 4 under the Dual Land System, Leasing System, Single Land System and Corporate-Holding System) were that 70 % of rural labor force have shifted to non-grain agriculture and off-farm activities, which have generated 80 % of the local revenue and 90 % of peasant households' income, the village had strong economic strength, competent leadership and an overall service system to farmers. However, not many rural areas could meet these desirable conditions. Thus, as long as some households were no more interested in grain production, a *basic* condition was already there, whereby the village could organize the transfer of their land to the full-time farmers in an obligatory way, rather than passively relying on their voluntary personal transfer. (Yang, Yong-Zhe 1995: 17). This could be done even before adopting the Dual Land System in the whole village. As the local conditions gradually approach the ideal ones, economies of scale of land operation could be raised accordingly.

As Table 5.5 shows, by 1994, still less than 50 % of total household contracted land had adopted the Dual Land System. In other words, more than half were still under the Equal Land System (mainly in the Western part). This is primarily because both urban and rural population of China has been increasing during 1949-96 (CSY 1991: 61. CSY 1996: 69. Bulletin 1996) while farmland

area was decreasing and the speed of rural industrialization especially in the Central and Western parts has not been fast enough to absorb the surplus peasants. The Dual Land System was popularized generally in the areas with per capita farmland of 0.08 ha; where it was smaller than 0.067 ha, responsibility land (if divided out from self-sufficiency land) would be too small to gain profits (CEST 1996: 39). Even in the Eastern part, although on one hand its rural industrialization was quicker, on the other it also held the densest population, which would certainly constrain the development of large-scale farming. For example, at the beginning of the 1980s, some densely populated villages in Wuxi County of the Sunan region, already had no responsibility land to be contracted to laborers (Prosterman; Hanstad & Li July 1996: 20). The criterion for appropriate large-scale farming varied across the country, but many regions determined it as about 0.67 ha per laborer. In 1994, the area under appropriate large-scale farming was 6,056,300 ha and accounted for only 6.5 % of the total farmland area of the country. (CEST 1996: 40)

Overcoming the last obstacle. Nevertheless, some effective ways to overcome the last obstacle have been found. Where they were implemented, quick progress was achieved. For example, of 2,347 villages in the plain of the suburbs of Beijing, by the end of 1986, 30 % or 706 villages had carried out large-scale farming; under further government intervention, in just two months of 1987, an additional 45 % or 1,051 villages did so, or 75 % of the total; in Shunyi County, 94 % did so (Meng, Fan-Qi 1988: 13). By 1996, in the Yangtze River Delta, large-scale farming units had become the backbone of agricultural production. In Zhejiang Province, two thirds of grain in state quotas was sold by large-scale farmers. (Shi; Zhu & Zhang 1996). As population growth may reach its peak sometime in the 21st century and then go down, and as the development in the Central and Western parts is accelerating since the 1990s, the prospect of overcoming this obstacle should be bright. In comparison, the rural households of Japan have been decreasing during 1950-95 (JSY 1997: 225) and off-farm activities had already been highly developed by 1960. Thus hardly any excuse in Japan could be found for the persistence of the last obstacle.

In 1993, in order to overcome the frequent redistribution of contracted land due to changes of family size and the use of farmland by housing construction, the state stipulated that for starting the second round of contracts (1994-

2024), farmland might be redistributed, but persons born over the family planning limit (i.e., a third child in rural areas) could not be given land; housing construction was to be regulated and standardized; then, the land of a household would not be reduced due to the deduction of its family size (thus encouraging family members to leave agriculture and render the remaining members more land), or increased due to its expansion (hence discouraging new births and obliging the newly increased persons to seek non-grain agriculture and off-farm employment); appropriate land transfer mechanism also should be established for achieving appropriate large-scale farming (Zhang & Hou 1995: 23-24. Zhang, Shi-Yun 1996: 17). However, on one hand, issuing these regulations itself could not guarantee a precise implementation of them (since in China, as in many other developing countries, the enforcement of laws and regulations are less effective than their establishment for the time being). On the other, specific and effective ways for reaching general goals have always been found by local officials and peasants through their own initiative, active and vigorous experimentation (e.g., temporary mutual aid teams, permanent teams, elementary cooperatives, advanced cooperatives, various forms of the Household Contract System and large-scale farming were all grass-roots inventions), to which the already established regulations should also be adapted.

IV. Functioning of Large-Scale Farming

Organizations of Large-Scale Farmers

Once expert farmers had been selected to be large-scale farmers, various forms of organization were created, as each rural area was allowed and encouraged to make experiments to find the most suitable ways. The principal forms are presented below.

Individual household farm.

This was the dominant form across the country (RG 1987: 17). In 1995, in Zhejiang Province, it accounted for about 90 % of the area under large-scale farming (Zheng, Ke-Feng 1996: 67). In the same year, in Wu County (Wuxian) of the Sunan region, it included 94 % of the large-scale farms (Prosterman; Hanstad & Li July 1996: 13).

A much earlier example is as follows. In 1976, Jingwang Brigade (Village) of Yanlu Commune (Township) of Lingbi County of Anhui Province assigned 60 mu (4 ha) of farmland to expert farmer Jing Xue-Rong to lead 10 farmers for scientific experiments. Due to collective operation, neither experiments nor normal production succeeded. Only 7,500 kg of grain were harvested, just offsetting the costs. At the end of the 1970s, the land was divided and contracted to a number of households, and in *1981*, contracted to Jing's household alone (six members, three laborers). Just in the same year, it harvested 14,000 kg of grain and sold 10,000 kg to the state. In 1982, although suffering from floods, it received over 28,000 kg and sold over 22,500 kg to the state, more than two times the quota of the Brigade. In 1983, by further enlarging farming scale and applying scientific methods of multiple cropping, it reaped 22,560 kg of wheat on 70 mu (4.67 ha), 6,000 kg of soybean on 40 mu (2.67 ha), 19,500 kg of dried white sweet potato on 30 mu (2 ha), 250 kg of sorghum on 1 mu (0.067 ha) and 125 kg of peanut on 1 mu, sold over 40,500 kg of grain to the state, and earned an annual income of over 13,000 yuan - per capita over 2,100 yuan - higher than the average local level. Its 48,310 kg of grain were equivalent to 128 % of the total grain output of the Brigade in 1978. (Gao & Liu 1984: 21)

Songke Brigade (Village) of Xiaomiao Commune (Township) of Feixi County of Anhui Province had a waste low-lying land of 93 mu (6.2 ha). Under the Equal Land System, it was divided to be contracted to a number of households, but could never be tilled well, resulting in a loss of several hundred yuan each year. In 1983, the Brigade auctioned its use to anyone who could pay 700 yuan as collateral. Gao De-Ming's household contracted it, planted rice, harvested 36,500 kg, sold to the state 32,500 kg, and earned 11,225 yuan in the same year. (Gao & Liu 1984: 21)

In Shunyi County of Beijing, in 1989, 22,000 mu (1,466.67 ha) of responsibility land were contracted to the individual household farms, with 12.1 mu (0.807 ha) per laborer (Pei, Chang-Hong et al 1992: 93).

Joint-households farm as a cooperative.

This was also one of the forms of organizations of large-scale farming across the country (Liang & Wang 1988: 17). At its preliminary stage, they were unstable, mainly due to difficulties in supervising and calculating remuneration to manual labor in the varied farmwork within the member households. For

example, there were 29 joint-households farms in grain production in Jiangsu Province in 1984. Owing to such difficulties, most of them were dissolved later. (Jiang, Ji-Fen 1986: 23). However, what evolved was a corporate-holding system in *operating* land. Land was owned by the village and contracted to the joint-households who won the bid. They mainly used large machinery so that farm work could be standardized and supervised. Remuneration was distributed among their respective shares of capital, machinery and labor. For example, in Leqing City of Zhejiang Province, in 1994, of 67 large-scale farms operating over 100 mu (6.67 ha), eight were share-holding joint-households farms. Wan Xian-Yu, Wan Xian-Jian and Chen Yao-Xi contracted 380 mu (25.33 ha) of paddy fields in 1993 and 403 mu (28.87 ha) in 1994, being the largest farm of grain production in the City. (Wu & Hu 1995: 42)

There were also cases in which the members of a joint-households farm were *few*, all with relevant expertise and hardworking, led by one household, and could supervise work and distribute remuneration according to each's labor contribution, although large machinery was not necessarily relied on. For example, in the mid-1980s, in the areas formerly flooded by the Yongding River and areas with more sandy land and fruit trees of Langfang Prefecture of Hebei Province, the village collectives could not provide effective services while single household operation was too weak, 1,135 joint-households farms emerged, on average contracting 55 mu (3.67 ha) per farm. In 1986, nine households of Ren Si-De et al contracted 160 mu (10.67 ha) of land. All the nine principal laborers were experts, three for fruit trees, two for melons and vegetables, and four for grain. They gathered funds of 11,000 yuan, dug a motor-pumped well, built six farm houses, planted 4,000 fruit trees, produced grain and oil crops on 100 mu (6.67 ha), melons and vegetables on 60 mu (4 ha), and could earn 18,000 yuan, 2,000 yuan per labor. (Cao & Liu 1987: 34-35)

Collective farm 1: operating and accounting unit at household.

In such a collective farm, the operating and accounting unit was still at household, the farm being a managing unit only. The village appointed and paid one or two managers who were then responsible for unified planning in planting, coordinating and managing those farm works which needed collective work, and arranging technical services to the member households. The households were to fulfil the whole process of farm work and the contracted output quotas, be

responsible for their own profits and losses and could dispose of surplus products. (Bai; Zhao & Pei 1988: 41). Such a household was actually also an individual farm (although not so called in practice) and was not much different from the above-mentioned individual household farm, except for its collective coordination, which could give the member households special services and help them to solve special problems so as to be competent in large-scale farming. (Zhang; Wang & Guo 1987: 15)

For example, in Shunyi County of Beijing in 1989, there were totally 497 collective farms, with 43,656 laborers, operating 648,000 mu (43,200 ha) of farmland, on average 1,304 mu (86.93 ha) per farm and 15 mu (1 ha) per laborer. 63.78 % or 317 of them were collective farms 1 (Pei, Chang-Hong et al 1992: 93).

Collective farm 2: operating unit at household level, accounting unit at both collective and household levels.

In the first section of this chapter, Bao *Chan* Dao Hu as the minor form of the Household Contract System was reviewed. It was also adopted for organizing expert farmers for large-scale farming.

The village assigned a few managers to organize a farm and contracted a large land and output quotas to it (which could also be attached to a rural collective firm TVE as its agricultural workshop), the farm was thus not only a managing unit but also an accounting unit. The farm further contracted output quotas to the member households. The farm undertook planning in planting, paid basic production costs, could dispose of products, with the remuneration to households based on a basic salary in money (although also could be in kind) subject to bonus and fine. The household was to fulfil the whole process of farm work and the contracted output quotas, hence functioning as both an operating and accounting unit (such a household was actually also an individual farm, although not so called in practice). (Bai; Zhao & Pei 1988: 41)

For example, in the above-mentioned 497 collective farms in Shunyi County of Beijing in 1989, 36.33 % or 180 were collective farms 2 (Pei, Chang-Hong et al 1992: 93).

In some collective farms of Wu County (Wuxian) of the Sunan region, there was an internal responsibility system called "five certains" - a certain person, certain land, certain yield, certain expenses, certain salary. Members were

assigned certain parcels, given a certain target yield, and allowed a certain amount of expenses. If they met the target yield while staying within the target expenses, they could receive a fixed salary. The annual salary was 5,200 yuan in one village and 10,000 yuan in another, both exceeding the average pay for a village factory worker. If members exceeded the target yield, they could receive a bonus, and if they exceeded the target expenses, they would be penalized. If the collective farm as a whole earned a profit, 50 % of it would be given to the members. (Prosterman; Hanstad & Li July 1996: 18-19)

In some areas where TVEs were very strong and income from grain production was low, such a farm was attached to a TVE as a workshop for agriculture. The TVE could use its profits to pay expert farmers a salary equivalent to or higher than that of a firm worker, as an incentive for them to concentrate on grain production and a direct subsidy and support to agriculture. It was called "integration between agriculture and industry" (Ran & Yang 1985: 17) or "management of agriculture by industry" (RWD 1984: 31).

For example, during 1982-84, Xinxu Brigade (Village) of Huangtang Commune (Township) of Jiangyin County of Wuxi City of the Sunan region set up an agricultural workshop and recruited 16 households which had previously produced 1,500 kg of grain (as commodity sold to the state) upon 3 mu (0.2 ha) of responsibility land (as opposed to self-sufficiency land) as agricultural workers. A worker should produce an annual yield of 650 kg of grain per mu (0.067 ha), and the workshop paid him cost 80 yuan, agricultural tax 12 yuan and salary 160 yuan per mu. He could retain straw, surplus grain output and cost savings, but inversely was liable for excess costs and should reimburse reduced output. The workshop took his revenue from selling grain, plus direct subsidies to his grain production by the Commune, and paid 8 yuan per mu to his Production Team as his dues for the common accumulation fund and common welfare fund. (RWD 1984: 31)

Collective farm 3: both operating and accounting unit at collective.

The village designated some managers to set up a farm (which could also be attached to a TVE as its agricultural workshop) to contract large land and output quotas. The farm employed a number of laborers to conduct *partial* farming (their family members could always help them). The collective was thus not only a managing and accounting unit but also an operating unit, while a

laborer (or his family) no more constituted an actual individual farm. The internal responsibility system was "contracting work to laborers (households) - Bao *Gong* Dao Lao (Hu)". If the workers could fulfil the work, they could earn a fixed salary. Better or worse performance would lead to a bonus or penalty respectively. However, this type of collective farms was still relatively few.

For example, Songjiang County of Shanghai started large-scale farming in 1984. Miaobang Village of Xinqiao Township set up a farm by gathering 205 mu (13.67 ha) of grain land from its three villager groups (previously production teams), the director of the village being the manager concurrently. Under the investment by the Village and Township, in 1989, the whole process of wheat production and sowing of rice were mechanized, and irrigation facilities completed. Farm laborers were responsible for the work which still could not be done by machinery, like managing field and harvesting rice under single cropping. The average income of members of the farm was a bit higher than that per local laborer. [Jiang, Zhong-Yi et al 1992 (a): 51, 58]

In Wu County (Wuxian) of the Sunan region, one collective farm of 303 mu (20.2 ha) had four member farmers and one manager. Another collective farm of 250 mu (16.7 ha) had three member laborers, a manager and a deputy manager. Each member farmer did the weeding and irrigation on his assigned land, but the plowing, transplanting, fertilization, pesticide application and harvesting were done jointly on a uniform basis. The managers had duties for oversight and technical advice. The member farmers were obliged to follow them, and if not, they could be replaced by others who would. (Prosterman; Hanstad & Li July 1996: 19)

In general, the above collective farms were also called *specialized teams*[19]. Being able to receive collective help, such farms (teams) developed relatively quickly. Table 5.10 shows that in the per household contracted land in specialized teams, the smallest (under 0.666 ha) decreased during 1986-92, except

[19] In some areas, e.g., Shunyi County of Beijing (Pei, Chang-Hong et al 1992: 93), only collective farm 1 was called so. In some others, e.g., Langfang Prefecture of Hebei Province (Cao & Liu 1987: 35), collective farm 2 was also called so. In some further others, e.g., Jiangsu Province (Jiang, Ji-Feng 1986: 23), only those not attached to TVEs were called so. But they were all called so by CEST.

for the Western part in 1990-92; and the average land area increased during 1986-92, except for the Eastern part in 1990-92. The ratio of the area contracted by the specialized teams to the total contracted farmland area of the country was 1.6 % in 1990 and increased to 2.6 % in 1992 and 5.9 % in 1994 (CEST 1991: 37. CEST 1993: 45. CEST 1996: 38).

Nevertheless, in 1994, of 6,056,300 ha of land under appropriate large-scale farming, 83.8 % or 5,074,100 ha were under individual household farms

Table 5.10 Land Contracted per Household in Specialized Teams of China 1986-92 (in percentage) *

Country	Average area (ha)	%	Under 0.666 ha	0.666-1.333 ha	1.4-3.333 ha	3.4-6.666 ha	6.733-13.333 ha	13.4-33.333 ha	33.4 ha and over
1986	4.5		16.5						
1988	5.17		12.5						
1990	5.68		11.5						
1992	6.8	100	10.3	82.1	1.2	1.5	2.7	2.1	0.1
Eastern									
1986	4.53		18.6						
1988	5.47		13.0						
1990	6.4		11.4						
1992	5.34	100	10.6	84.2	1.3	0.7	1.8	1.3	0.1
Central									
1986	3.93		22.5						
1988	5.47		18.1						
1990	6.2		11.9						
1992	12.94	100	8.3	70.7	2.1	10.0	6.2	2.7	0
Western									
1986	3.87		8.6						
1988	4.07		8.6						
1990	3.87		8.4						
1992	8.526	100	10.3	80.1	0.5	1.1	4.0	3.6	0.4

* Samples from 7,983 Villages of over 200 Counties in 29 Provinces, Municipalities and Autonomous Regions (without Tibet and Taiwan).
Source: CEST 1993: 48.

Table 5.11 Organizations of Large-Scale Farmers Changshu City of China 1989						
	Individual household		Joint-households		Collective farm 2	
Total large-scale farming units: 190	145	% 76.32	9	% 4.74	36	% 18.95
Total area: 11046.4 mu (736.43 ha)	8037.1 (535.81)	72.76	564 (37.6)	5.11	2445.3 (163.02)	22.14
Total laborers: 536	343	63.99	27	5.04	166	31.03
Area per unit: mu (ha)	55.4 (3.69)		62.7 (4.18)		68 (4.53)	
Area per laborer: mu (ha)	23.4 (1.56)		20.9 (1.39)		14.7 (0.98)	
Source: Jiang, Zhong-Yi et al 1992 (c): 80-81.						

(including the joint form), and only 16.2 % or 982,200 ha under collective farms (CEST 1996: 40) (Table 5.11 shows the similar ratio in Changshu City in 1989). The collective farms were also based on households as the operating and accounting unit (in 1 and 2) or on internal responsibility system closely related to the individual worker's performance (in 3), and thus different from the previous collective farms under the unique collective operation of land before the economic reform. In Songjiang County of Shanghai, Yuyao City of Zhejiang Province and Changshu City of the Sunan region, there existed all the above-mentioned forms of individual household farms, joint-households farms, and collective farms. Farmland operated by a farming unit in each form varied from 15 mu (1 ha) to 1,000 mu (66 ha). (Jiang; He; Wang et al 1992: 15-16)

Urban-rural joint enterprise.

This is not strictly within the focus of the chapter. However, in order to show that public land ownership could allow urban enterprises to participate in agriculture for large-scale farming in such a scope that *cannot be expected under the present private land ownership system of Japan*, some examples are given.

In 1995, dozens of enterprises in construction, textile, brewery, etc. of

Shaoxing County of Zhejiang Province started to invest in agriculture, including farming, forestry, animal husbandry, fishery and related off-farm activities. They all made large investments (over 1 million yuan once in each item), used high technology and implemented economies of scale. As a result, they all gained profits and then reinvested them in agriculture. Yongli Group - a large enterprise of textile machinery - of Yangxunqiao Town planted rice in over 100 mu (6.7 ha) of land and achieved output of over 50,000 kg. Xianheng Group of brewery took over Jiefang Reservoir of Lanting Town, built water conservancy projects which ensured stable yields despite drought or excessive rain to nearly 1,000 mu (66.7 ha) of farmland in the nearby nine villages, and gained profits from developing fishery in 800 mu (53.33 ha) of water surface. Green Group signed contracts with 3,000 peasant households for producing vegetables without pollution and selling them to the Group for export. Totally 4,000 mu (266.67 ha) of waste mountain and 1,000 mu of waste water were reclaimed. (Xin & Zhao 1996)

Since the beginning of 1995, over 50 large and medium industrial enterprises of Guangdong Province have, with the plan of investing totally several billions of yuan, invested more than 1 billion yuan in agriculture of not only the Province itself, but also Heilongjiang Province, Jiling Province, Xinjiang Uighur Autonomous Region, Hexi Corridor (in the West of Yellow River) of Gansu Province, and plain between the Yellow River and Huaihai River[20]. Via investment, cooperation, purchase, etc., Shennong (meaning magical agriculture) Development Corporation Ltd established by Sanjiu Group of Shenzhen City (a Special Economic Zone near Hong Kong) has entered agriculture. The assets of the agricultural enterprises it held has reached over 1 billion yuan in 1996, yielded taxes and profits of 100 million yuan from agricultural items, and increased the income of over 300,000 peasant households in 1995. In Heilongjiang Province, Haowei Group of Shenzhen City invested 220 million yuan in developing Zhenbaodao Farm of 385,000 mu (25,666.67 ha) of land together with some partners there, which was the largest overall agricultural development project invested by urban enterprises of the whole country. Once completed, it

[20] Heilongjiang Province and Jiling Province are in the Northeast part, Xinjiang Uighur Autonomous Region and Gansu Province Western part, and the plain between the Yellow River and Huaihai River Central part of China.

could produce over 58 million kg of grain and soybeans, 10,000 oxen for meat, 350,000 kg of fish, and over 500,000 kg of vegetables. (Wang, Yun-Feng 1996)

External and foreign venture.

Chinese public land ownership could permit external and foreign ventures into domestic agriculture in large-scale, *which is unimaginable under the private land ownership system of Japan.*

In Panshidian Village of Panshidian Town of Haiyang County of Shandong Province[21], there was a land of 300 mu (20 ha), in which the peasants had been reluctant to make more investment so that the yield of taro could not be raised for many years. In the spring of 1995, the Village signed a contract with Chen Zong-Tong of Singapore who had established the Tongda Food Company Ltd under single venture in nearby Yantai City: the Village leased it to the Company for 10 years for setting up Tongda Farm for producing grain, oil crops or vegetables only; land could not be desolated and no buildings be constructed upon. The annual rent of 100,000 yuan, plus salary to farmers in the Farm, could bring net revenue of 200,000 yuan to peasants, equivalent to over three times average revenue under normal harvest years. The rent was used in establishing off-farm projects and welfare services to villagers. The Farm invested in the renovation of water conservancy facilities, applied sufficient base fertilizer before sowing, and invited highly eligible agricultural scientists and technicians to guide farmers in scientific management of taro cultivation. Yield would be over 2,500 kg per mu, 70 % higher than the average local yield. Taro would be sent to the Company to be processed and then exported. After examining the Farm in August, foreign businessmen were very happy with the quality and orders already extended to Aug. 1996. Meanwhile peasants not only learned advanced technologies, but also gained a new idea "To earn high revenue from planting taro, large investment is necessary". (Gong & Wang 1995)

In the Yangtze River Delta (including Shanghai, a part of Zhejiang Province and Jiangsu Province) which has the best natural conditions, densest population, highest output of commodity grain, and highest living standard in China, companies from over 20 external regions and foreign countries including Taiwan, Hong Kong; Australia, Brazil, Germany, Japan, Singapore, Thailand, US

[21] Shandong Province is in the Eastern part of China.

have invested in agriculture in recent years. During 1994-96, in the state farms in its southern part - Hangjiahu plain of Zhejiang Province, over 40 external and foreign ventures, with a total investment nearing US$ 100 million, were set up; while in its northern part - the Sunan region, 700 ventures, over US$ 200 million. In its further northern part, Nantong City of Jiangsu Province, an external overall agricultural development zone with 28,000 ha of sea beach was founded in Oct. 1995. It was planned to develop it for the production, process and export of grain, cotton, oil crops, fishery products by 2001. The state has given incentives in terms of taxes, land use, etc. By June 1996, over 10 joint ventures had been established, with total investment of 17 million yuan. (Zhang; Zhu & Shi 1996)

In sharp contrast, Xinjiang Uighur Autonomous Region is one of the areas with the most unfavorable natural conditions, scarcest population, largest waste land (10 million ha of reclaimable land plus mountains and the Gobi Desert), and lowest living standard in China. At the beginning of the 1990s, the state decided to develop the Region into the largest base of cotton production and an important base of grain production of the country. It implemented various favorable policies (including long-term land leasing) to attract domestic, external and foreign investors to reclaim waste land, with the first 500,000 ha to be achieved by 2001. Since 1994, businessmen from Hong Kong, Canada, Israel, US, etc., together with Chinese domestic industrial and commercial companies from the Eastern and Central parts, have invested on a large scale. Compared with the previous reclaimers, they made much more investment, carried out much larger-scale farming with higher level of mechanization and more advanced technologies. (Li, Da-Dong 1996)

The above examples in urban-rural joint enterprises and external and foreign ventures, and their stretch into the Central and Western parts of China also reflected features 11 and 12 of the Chinese model of rural development.

Concerning the trend in the organizations of large-scale farmers, according to Tables 5.9 and 5.10, small-scale farms in both individual household farms and collective farms would be decreasing and large-scale ones increasing. Even in the long run, individual household farms may still be the major form in the whole country, but collective farms may grow more quickly. Urban-rural joint enterprises and external and foreign ventures in China's agriculture may well develop further.

Agricultural Mechanization with Large Machinery

After getting more land to operate, the family labor force of the large-scale farmers was usually not enough. Take for example a household in Tanjia Village of Lulong Town of Lu County of Hebei Province which contracted 95 mu (6.33 ha) of land in 1987. Due to still using cattle plus hoes by family members, net income per mu reduced to 80 yuan, less by over 100 yuan than that in small-scale farming. (Lu, Nong 1988: 42)

Thus, wage labor employment by large-scale farmers had been widespread across the country by the early 1990s (Caidisi 1992: 165). In some areas, 70 % of them did so (Liang & Wang 1988: 18).

Various problems occurred. For example, in some individual large-scale farms in Xinzhou Prefecture of Shanxi Province, hired labor force accounted for 60.2 % - 80 % of their total labor force, thus *labor productivity was not raised.* Most of them were hired for the busy seasons, few for the whole year. Due to shortage of local skillful able-bodied laborers who were mainly engaged in off-farm production, most of the local employees were *aged, female, weak, less skilled,* and were only available after they had finished farm work on their own land, thus missing the best timing, and harming the output for the employers. It was *difficult to supervise* varied manual farm work with simple tools, which led to careless farming. *Labor costs rose quickly* and reached 31.2 %, even 45.7 %, of the total costs. (Zhang & Xing 1985: 54). *Laborers from outside also were at lower quality,* because most of them were from poorer rural areas, with low literacy levels, and highly mobile, as reported, e.g., in Suzhou City of the Sunan region (Shi & Zhang 1987: 23).

Thus it became necessary for the large-scale farmers to use large machinery to reduce costs, especially labor costs. Dividing land into compact forms (rectangular or square) and constructing roads among them made large machinery usable. Table 4.1 "Comparison of Rice Production Costs by Farm Size in Japan 1953-94" in Chapter 4 showed that as farm size increased, by using large machinery since 1970, total costs, labor costs, machinery and power costs decreased significantly. Such data for China as a whole are unavailable. But individual reports indicate the same trend. For example, labor costs continuously rose year after year in the Sunan region. In 1987, manual transplanting of rice

seedlings per mu cost 20 yuan, while a transplanter costing 4,000 yuan could serve 200 mu (13.33 ha). Therefore, if it were bought, the investment could be offset within one year by savings in labor costs. According to such calculation, Ouqiao Village of Miaoqiao Town of Zhangjiagang City bought five transplanters in 1986, which demonstrated good results. In 1987, 50 were bought in the whole Town. In the same year, Zhengyi State Farm of Kunshan County decided to use mechanical transplanters for all transplanting. Besides, during the busy seasons, inviting relatives and friends to help with farm work meant incurring entertainment costs. A table of good meal cost 40-50 yuan. Thus peasants were willing to pay fees for machinery services. (Qiu, Wei-Lian 1987: 29)

Owning machines was better for farmers than no machines. For example, an investigation of nearly 200 expert grain farmers in over 310 counties of 27 provinces, municipalities and autonomous regions in 1983 showed that on average those households which owned motive power machines [some of them even operated over 500 mu (33.3 ha) of farmland] could sell over 1,450 kg of commodity grain and earn 720 yuan, while those without any machines could only sell over 1,100 kg and earn 558 yuan (both in terms of per capita), the former being 32 % and 29 % higher than the latter respectively (Zhou, Xiao 1984: 35).

However, owning machines also implied constraints. For example, it was found in Suzhou City of the Sunan region and Beijing that households could not afford large investment, especially in buying complete sets of large machinery; the use of self-owned machinery was limited, resulting in diseconomies of scale and high cost; it was difficult for farmers to both till land and manage and maintain machines, which also required special knowledge and much time (Fan, Kun-Tian 1987: 63. Bai; Zhao & Pei 1988: 41-42).

Therefore, while (1) encouraging those large-scale farmers who could afford to buy and efficiently use large machinery to do so, many areas also promoted (2) specialized individual households, or (3) joint households, or (4) collectives to give machinery services to large-scale farms. For example, Lingkuang Town of Zhongxiang County of Hubei Province had all four of these forms (Wang, Wei-Jia 1987: 35). An investigation of 2,277 specialized households in over 310 counties of 27 provinces, municipalities and autonomous regions in 1983 revealed that 66 % or 1,500 of them were specialized in

providing machinery services to farming, livestock raising, repairing, transporting and processing (Zhou, Xiao 1984: 35). In 1989, Jiangxiang Village of Changshu City of the Sunan region invested 465,000 yuan in setting up a collective general agricultural service station, which employed 47 technicians and provided services in agricultural machinery, technology, irrigation and plant protection to all households, priority being given to large-scale farms. 80 % of transplanting and 99 % of harvesting were mechanized. By charging fees, the station earned gross revenue of 120,000 yuan and net income of 4,000 yuan in 1991. During 1989-91, the investment in agricultural machinery in the whole City was 9,320,000 yuan which added 1,675 sets with 14,000 horse-power to the existing machinery. [Jiang, Zhong-Yi 1992 (c): 82-83]

As large-scale farming proceeded, in Zhejiang Province in 1994, there was a "hot wave" of purchasing large machinery including irrigating and draining equipment, trench diggers, walking tractors, manure vehicles, manure appliers, ploughing machines, sowers, factory-style plant and equipment for raising rice seedlings, motor transplanters, insect eliminators, ordinary harvesters, combine harvesters, electric threshers, motor boats, trucks, etc., mechanizing the whole process of grain production including ploughing, irrigating, draining, raising rice seedlings, transplanting, protecting plant, applying fertilizer, harvesting, threshing and transporting (Ding; Wei; Yang & Sang 1995: 25). In 1995, on 650,000 mu of land in Jiangyin County of the Sunan region, there were 1,500 sets (kits) of large and medium tractors and combine harvesters. The degree of machinery ploughing and threshing reached almost 100 %. Each village had machinery service team. (Liu; Kong & Liu 1995). Hence *feature 10 of agricultural mechanization with large machinery* in the Chinese model of rural development.

Optimal Size of Large-Scale Farms

Various practices in China have shown that large-scale farms have been better than small-scale ones in achieving lower costs, higher labor productivity, higher output, higher commodity grain rate[22], higher income per worker/househ-

[22] Commodity grain rate is the ratio of commodity grain quantity to the total grain output. For example, if of 100 kg of grain, 80 kg were sold, then the commodity grain rate was 80 %.

old and higher yield per land unit, or higher overall appraisal combining all these indicators (even if some of the indicators may be worse than in the small-scale ones). By gradually hiring less wage labor, using more machinery on larger land, and phasing out direct subsidies, costs of large-scale farms could be lowered from the initially higher level. But labor productivity, output, commodity grain rate, and income per farm would be raised even with the same yield, as long as the expansion rate of land exceeded that of labor force. Thus, the *key indicator* of the better economic results of large-scale farms was higher yield. These practices have also demonstrated that if farms were larger than an *optimal* size, the above indicators would be sub-optimal. The optimal farm size, however, varied across time and place, and was dynamically determined by the degree of agricultural mechanization, infrastructure, services, the operating and managing skills of large-scale farmers, the economic structures (urban-rural, industry-agriculture, import-export, etc.), cost/profit ratio, etc.

For example, Table 5.12 shows that as the degree of agricultural mechanization was enhanced, farm size could be enlarged. It also points out the optimal size of large-scale farms under different degrees of mechanization in three major areas of grain production of the country in the mid-1980s.

Tables 5.13, 5.14 and 5.15 indicate that while large-scale farms were better than small-scale ones, there was also an optimal size per household. This was 20-30 mu (1.33-2 ha) in six counties and cities (rice, wheat and maize) across the country in 1990-91, 35-39.9 mu (2.33-2.66 ha) in the suburbs of Beijing (wheat and maize) in the mid-1980s, and 10.1-15 mu (0.673-1 ha) in Wuxi County in 1986. Table 5.13 does not provide data on costs. In Table 5.14, the optimal size gave the highest per mu cost of all farm sizes, but its overall appraisal combining all indicators was also the highest. In Table 5.15, the optimal size carried the highest per mu income without direct subsidy implying the lowest per mu cost, and the highest per mu yield.[23]

The optimal size of large-scale farms should be ascertained by practice and experiment. For instance, in 1993, large-scale farmer Wan Ying-Gan of Xintang Village of Lecheng Town of Leqing County of Zhejiang Province operated 8 ha

[23] The observations in Tables 5.12-5.15 are not large enough for running regressions. More detailed data, however, are unavailable.

Table 5.12 Maximum Land Area per Laborer and Household under Different Degrees of Mechanization in China mid-1980s

	Mechanization item	Maximum area per laborer				Maximum area per household		Data source
		Summer busy time		Autumn busy time				
		mu	ha	mu	ha	mu	ha	
Wuxi City & Suzhou City, Sunan region, Jiangsu Province	Ploughing, harrowing, levelling, irrigating, plant protecting, wheat harvesting, threshing, ditching	6.83	0.46	7.90	0.53	13.7	0.91	Huazhuang Town & Youyi Town, Wuxi
	Ditto plus sowing	6.32	0.42	8.37	0.56	12.6	0.84	Dongxiang Town, Wuxi
	Ditto plus rice seedling raising in factory methods, transplanting, rice harvesting, field transporting	12.11	0.81	15.94	1.06	24.2	1.61	Luyang Town, Suzhou
		11.96	0.80	15.30	1.02	23.9	1.59	Huazhuang Town & Youyi Town, Wuxi
		11.59	0.77	16.23	1.08	23.2	1.55	Dongxiang Town, Wuxi
Huabei (North China)	Ploughing, harrowing, levelling, threshing, transporting	6.52	0.43	9.64	0.64	13.0	0.87	Jin County, Hebei Province
	All mechanized except for maize harvesting	25.51	1.70	16.92	1.13	33.8	2.25	Fangshandou Town, Beijing
Liaoning Province & Heilongjiang Province, Dongbei (Northeast China)	(A) Ploughing, harrowing, levelling & (B) threshing	mu		ha				Shuangcheng County, Heilongjiang
		24		1.6		48	3.2	
	(A) plus (C) sowing, transporting plus partial (D) harvesting & partial (B) threshing	45 (sowing in small tractors)		3		90	6	Changtu County, Liaoning
		70 (sowing in large tractors)		4.67		140	9.33	
	(A) (C) plus (D) harvesting & (B) threshing	200		13.3		400	26.67	Fujinjianshan State Farm, Heilongjiang

Source: JRG 1987: 30-31.

Table 5.13 Comparison of Economic Results under Different Farm Sizes in 586 Households of Six Counties and Cities of China 1990-91

mu	ha	House-hold No.	Persons per house-hold	Laborers per house-hold	Income per capita (yuan)	Yield per mu of grain (rice, wheat, maize, etc.) (kg)	Yield per mu of rice # (kg)			
							Shanghai	Jiangsu	Zhejiang	Shaanxi
Under 5	Under 0.33	268	3.4	2.0	980	625	922		712	
5-10	0.33-0.67	196	3.9	2.5	805	609	989	972	835	
10-15	0.67-1	59	5.1	2.7	805	615	973		752	610
15-20	1-1.33	22	5.8	3.0	1506	657				
20-30	*1.33-2*	20	5.2	2.2	*2589*	*689*	*1024*			*675*
Over 30	Over 2	18	5.6	2.9	2838	666	950	810	814	641

* Six counties & cities: (summer rice, winter wheat) Songjiang County of Shanghai, Yuyao City of Zhejiang Province, Changshu City of Jiangsu Province, and Lingui County of Guangxi Zhuang Autonomous Region; (wheat & maize) Shunyi County of Beijing, and Wugong County of Shaanxi Province.[24]

Some rice producing households among the above 586 households. Household No. unspecified.

Sources: Jiang; He; Wang et al 1992: 17-18, 25. G & G 1992: 129.

[24] Guangxi Zhuang Autonomous Region and Shaanxi Province are in the Western part of China.

Table 5.14 Comparison of Economic Results under Different Farm Sizes in 236 Households of Beijing of China mid-1980s

		Cost per mu (yuan)	Man-day per mu	Investment on mech-anization per mu (yuan)	Overall degree of mechani-zation	Yield per mu (kg)	Labor productivity (kg)	Com-modity grain rate %	Income per laborer (yuan)	Overall appra-isal	Ordi-nal No.
Weight		0.1	0.1	0.1	0.1	0.2	0.15	0.15	0.1		
mu	ha										
Under 5	Under 0.33	57.53	23.78	80.95	49.85	473.735	1536.33	7.38	425.66	0.647	9
5-9.9	0.33-0.66	75.21	13.33	80.86	50.06	457.735	3112.96	42.84	685.15	0.770	8
10-14.9	0.67-0.99	79.89	11.73	74.88	51.77	478.11	5114.64	52.14	1136.81	0.864	7
15-19.9	1-1.32	76.39	10.21	81.27	56.28	476.92	7801.59	52.40	1761.25	0.945	6
20-24.9	1.33-1.66	79.14	10.36	99.69	64.04	471.785	9969.82	58.77	1943.23	1.000	5
25-29.9	1.67-1.99	78.09	8.29	96.63	64.42	403.03	11105.81	69.18	2135.28	1.143	4
30-34.9	2-2.32	90.88	5.67	108.86	68.85	475.87	14916.825	78.31	2434.58	1.220	2
35-39.9	*2.33-2.66*	104.48	*4.00*	*183.53*	*100.00*	*530.015*	*19354.5*	*92.06*	2407.25	*1.420*	*1*
40-50	2.67-3.33	79.89	5.39	102.87	62.42	440.525	18761.375	46.84	2481.64	1.202	3

Source: JRG 1987: inside back cover.

Table 5.15 Comparison of Economic Results under Different Farm Sizes in 240 Households of Wuxi County of China 1986

mu	ha	House-hold No.	Area per farming laborer		Yield per mu (kg)	Commo-dity grain rate (%)	Output per farming laborer (kg)	Income per mu without direct subsidy (yuan)	Income per farming laborer without direct subsidy (yuan)
			mu	ha					
5-10	0.33-0.67	92	8.91	0.594	744	60.7	6630.5	217.52	1938
10.1-15	*0.673-1*	97	10.41	0.694	*762.5*	68.39	7933	*229.02*	2383
15.1-20	1.01-1.33	23	13.88	0.925	729.5	79.41	10121	201.99	2803
Over 20	Over 1.33	28	13.79	0.919	691.5	87.77	9537.5	182.36	2515
Average		240	11.02	0.735	735.5	71.75	8101.5	210.71	2321

Source: Liu & Song 1987: 27.

of grain land. In 1994, however, rather than expanding farm size gradually, he immediately enlarged it to 16 ha, leading to the decline of his net income from 16,800 yuan to 16,000 yuan. In 1995, he reduced the size to 7 ha, resulting a net income of 75,000 yuan. (Wu; Yu & Zhu 1996: 15)

Subsidies and Self-Reliance

As already stated, in the high wage economy, income from grain (and other major agricultural products like cotton, oil crops) production upon small farms was very low in comparison with that from other lines. Raising income of expert grain farmers by enlarging their farm size was, however, constrained by not squeezing out those peasants who could not yet find jobs in non-grain agriculture and off-farm activities, insufficient services (irrigation, machinery, etc.), inferior infrastructure, the operating and managing skill of the expert farmers themselves, etc. Under such circumstances, large-scale farmers should be helped.

Initially, *as the first stage*, villages and local governments (townships, counties, prefectures) might have to use *direct subsidies* gained from non-grain agriculture and off-farm lines to promote the formation of large-scale grain farmers, so that by contracting larger responsibility land, grain producers could earn an income equivalent to, or higher than that from other lines. An investigation into 253 villages in 26 provinces and municipalities around 1990 showed that 23.7 % of them implemented a policy of *subsidizing agriculture by industry* (yi gong bu nong). The forms varied from giving a certain amount of money to grain farmers on the basis of *per laborer* engaged solely in farming (6.7 % of the villages, on average 26.5 yuan per month), or *per mu* of responsibility land (16.7 %, 42.7 yuan), or in proportion *to the output in quota* (26.7 %, 13.6 yuan per 100 kg), or *to the extra output sold to the state* (6.7 %, 22.5 yuan per 100 kg); to charging less or no fees on providing collective services (68.3 %), in which 3.8 % of poor villages (annual per capita income up to 300 yuan) subsidized 6 yuan per mu, 1.9 % of lower-middle income villages (300-450 yuan) 2 yuan per mu, 12.8 % of middle-income villages (450-650 yuan) 6.18 yuan per mu, 20 % of upper-middle villages (650-900 yuan) 13.5 yuan per mu, 43.2 % of high income villages (900 yuan and over) 13.66 yuan per mu. Therefore, contracting larger

land and producing higher output could get more direct subsidies, hence incentive to become large-scale grain farmers. (Jiang; He; Wang et al 1992: 31-32). Other forms were to charge more collective fees (village drawn fees and township drawn fees) from non-grain agriculture and off-farm lines, but less or no fees from large-scale grain farmers; give direct subsidies to them in proportion to their yield per mu; or divert a part of profits of TVEs to them (as in the above-mentioned agricultural workshop of TVEs).

For example, in 1983, communes, brigades and teams of Yanbei Prefecture of Shanxi Province charged more collective drawn fees from non-grain agriculture and off-farm lines, but less or no fees from large-scale grain farmers. 2-3 million yuan as part of the financial resources in reserve of the Prefecture, counties and communes was used on direct subsidies to large-scale grain farmers in 1983. (Lin & Tao 1983: 7)

At the second stage, as the large-scale farmers became able to stand on their own feet to earn an income equivalent to or higher than that from other lines in a competitive way, the direct subsidies could and should be phased out, so that they would not rely on them.

For example, Huangjiabu Town of Yuyao City of Zhejiang Province started the Dual Land System (although called trio land system: self-sufficiency land, responsibility land, plus reserve land which before being used on other purposes in rural development was treated as responsibility land) in two villages in 1993 and four in 1994-95. Responsibility land was contracted for five years to expert farmers. Initially, it was distributed without via bidding (larger land to farmers with more expertise and smaller land to those with less expertise judged upon their previous performance). Villages subsidized them by a certain amount of money per mu and machinery services in ploughing and irrigating free of charge. Then, bidding was introduced in Huajia Village and Xihua Village which allowed non-villagers to participate with priority to villagers. In order to win the competition, some expert farmers not only did not need the direct subsidies per mu, but also wished to pay contract fees (or rent) per mu and fees for machinery services, thus won. In early 1996, in the whole Town, 1,288 mu (85.87 ha) of farmland were operated by expert farmers, with 20 households contracting over 10 mu (0.67 ha) and 10 households over 100 mu (6.67 ha). (Qian; Shi & Xie 1996: 27-29, 32)

During 1985-86, large-scale farmers in Jintan County of the Sunan region voluntarily contracted larger land without direct subsidies, achieved grain production better than that by small-scale farmers and earned an income higher than that of off-farm workers (Qian, Wei-Zen 1987: 16-17).

At both the first and second stages, villages and local governments could also divert a part of profits of non-grain agriculture and off-farm lines, as *indirect subsidies*, to the improvement of services, infrastructure and technology in agriculture, which could significantly reduce costs in grain production, help large-scale grain farmers to get rid of direct subsidies earlier and upgrade the overall rural development. This was usually called *constructing agriculture by industry* (yi gong jian nong). The indirect subsidies were more significant, fundamental, long-term and wider benefiting than the direct ones. Much importance should be attached to and emphasis put on them by villages and local governments over a long period. Villages could also reinvest gains contributed by large-scale grain farmers themselves (e.g., contract fees, rent) in the improvement of services, infrastructure and technology in agriculture.

Take an example of the indirect subsidies at the first stage. In the above-mentioned Yanbei Prefecture, Liaohuozhuang Brigade realized a revenue of 200,000 yuan from non-grain agriculture and off-farm lines in 1982. Besides giving direct subsidies, it spent 60,000 yuan as indirect subsidies on farmland infrastructure, built three irrigation stations and 6,000 m of canals, and levelled 6,000 mu (400 ha) of land. (Lin & Tao 1983: 7)

Such an example at the second stage was the aforementioned Huajia Village and Xihua Village of Huangjiabu Town of Yuyao City of Zhejiang Province where large-scale farmers did not need direct subsidies and paid fees for contracting land and receiving services in 1994-95. Nevertheless, the Town and Villages still gave indirect subsidies to the improvement of services, construction of infrastructure (including ditches, canals, roads), and the adoption of new technology and techniques, and purchase of large machinery by these large-scale farmers. (Qian; Shi & Xie 1996: 29)

A more significant example was Changshu City of the Sunan region where the large-scale farmers formed via bidding under the Dual Land System in 1989 could not enjoy direct subsidies and had to pay a contract fee per mu plus other collective fees which were then reinvested in the promotion of services,

infrastructure and technology in agriculture. During 1989-91, the City's invested 9,320,000 yuan in agricultural machinery, which increased by 1,675 sets (kits) with a total of 14,000 horsepower. In 22 large-scale farming units of eight demonstration villages situated around Xiaoshan Village of Dayi Town, the whole process in rice and wheat production was basically mechanized. Thus, mechanized sowing of rice was carried out on 76.5 % of the total farmland, and combine harvesters for both rice and wheat were used on 82.6 %; for realizing modern irrigating and draining system, 1,325,000 yuan were invested, 128,600 man-days put and 312,000 cubic meters of earth completed in constructing 30 km of underground cement pipelines for carrying water, covering 7,337 mu or 60 % of the whole area of these villages. As a result, *higher yield* was achieved. The average annual per mu yield of grain was 727 kg, higher than that of these villages and of the City by 4.1 % and 11 % respectively. In 1990, due to unfavorable natural conditions, the average per mu yield of wheat of the City dropped to 184 kg, lower than that in 1989 by 21.7 %, but that of these large-scale farming units reduced to 230 kg, lower than that in 1989 by 1.9 % only. In 1991, the same item of these units recovered to 281.5 kg, 4.8 % and 9.8 % higher than that of these villages and of the City respectively. *Higher labor productivity* was reached, as the average annual output of grain per laborer went to 11,300 kg, 9.7 times that of the City. *Higher commodity grain rate* was realized. Their average annual rate of 90.4 % was higher than that of the City by 65.2 %. Thus they were no more traditional self-sufficient small farmers, but modern commodity grain producers. *Higher income per laborer* was earned. Their average annual net income per laborer increased to 4,148 yuan, 2.2 times that of TVEs of the City and 2.48 times that of the City. *High input-output ratio* was gained. Although they had to pay for machinery services, due to economies of scale, the ratio was still as high as 1:1.82. [Jiang, Zhong-Yi et al 1992 (c): 81-84]. Although other factors also contributed to the above achievements, the policy of constructing agriculture by industry played an important part.

At the third stage, the large-scale farmers became more competent and could even give up the construction fees by the industry. Of course, there is still a long way before reaching this stage in the whole country. In 1990, however, Shunyi County of Beijing was already near it, which is shown below as an example.

Each year before 1986-87, under the Equal Land System, the County, townships and villages had to divert 30 million yuan of off-farm profits to agriculture, which were dispersed in direct subsidies to agricultural tax, collective fees, irrigation, tillage, electricity, fertilizer, etc. Each year since then, under the Single Land System, the large-scale farms could accumulate 40-50 million yuan, thus the direct subsidies were changed to indirect ones on improving services and infrastructure like agricultural machinery and water conservancy. As the large-scale farms could become stronger and stronger on their own feet, they could gradually reduce and even finally waive the "blood transfusion" from off-farm profits. (Liaison 1989: 38). The strength of the large-scale farms, as some of the major benefits of the large-scale farming and collective-individual mixed economy, is indicated below.

Increase of income of agricultural labor force. Compared with the annual income per laborer of 400-600 yuan by contracting 3-5 mu (0.2-0.33 ha) under the Equal Land System, it was raised to 1,800-4,100 yuan by contracting 26.2 mu (1.75 ha) on average in 1988. (Liaison 1989: 36)

Growth of grain production. During 1985-89, although the area of grain land continuously declined, the total output, per mu yield, and sale of commodity grain to the state successively increased as Table 5.16 shows. In 1989, the commodity grain rate of the large-scale farms reached 56 %, accounting for 93 % of the total commodity grain of the County. In 1990, the total output and per mu yield continued to increase. (Pei, Chang-Hong et al 1992: 94). Their sale of grain to the state increased by a big margin, because they wanted to contribute to the state by selling more grain (even though compared with the free market prices, the quota prices were much lower and negotiable prices might also be lower), so that the state could strengthen its position in grain reserve and stabilize the grain supply situation of the country.

Progress in agricultural mechanization with both small and large machinery. During 1986-88, 200 million yuan were invested in agricultural machinery by the County, townships and villages. 384 large and medium tractors, and 1,053 small ones, 1,252 trucks for agricultural use, 459 combine harvesters, 150 maize harvesters, 136 large, medium and small seeders, 146 precision maize seeders, nine stove drying machines were purchased. Motive power of the agricultural machinery and that per 100 mu (6.67 ha) of grain land were raised

from 516,000 h.p. (horsepower) and 73.7 h.p. in 1985 to 642,000 h.p. and 91.7 h.p. in 1988 respectively. Machinery sowing and harvesting for wheat reached 100 % and 87 %, for maize 63 % and 14 % respectively. The period for major farm work like planting, tilling and harvesting in the summer and autumn was reduced from about two months to 15-20 days. (Liaison 1989: 37). The composition and procurement of machinery were according to the goal of finishing harvesting and planting in the summer within seven days, and those in the autumn within 10

Table 5.16 Growth of Grain Production in Shunyi County of China 1980-89

Year	Area of grain land (ha)	Total output (tn)	Yield per mu (kg)	Sale to the state (tn)
1985	48216.9	426,520	589.5	96,245
1986	46785.3	431,505	615	107,370
1987	46801.3	471,590	671.5	158,785
1988	46769.5	496,000	707	160,000
1989	46468.9	512,110	734.7	200,000

Source: Pei, Chang-Hong et al 1992: 87. Liaison 1989: 36.

Table 5.17 Possession of Agricultural Machinery (set) in Shunyi County of China 1987-90

Machinery	1987 quantity	1988 increment	1990 increment	1990 quantity
Large & medium tractor	1898	500	600	3000
Wheat combine harvester	574	200	250	800 *
Maize harvester	55	300	450	800
Maize sower	61	140	50	250
Wheat rotary sower	123	297		420
Grain stoving machine #	4	30	16	50
Truck for agricultural use	1378	500	1000	3000
Irrigating sprayer	300	400	1300	2000
Spraying area (ha)	4666.7	6666.7	22000	33333.3

* Original sum may be wrongly calculated. The sum is 1024.
\# Stoving 15 tn per set per hour.
Source: Pei, Chang-Hong et al 1992: 94-95.

days (Pei, Chang-Hong et al 1992: 94). Table 5.17 provides a general picture.

Popularization of advanced technology. The area of *chemical weeding* was enlarged from 256,000 mu (17,066.67 ha) in 1985, 333,000 mu (22,200 ha) in 1986, 626,000 mu (41,733.33 ha) in 1987 to 740,000 mu (49,333.33 ha) in 1988, and that for wheat from 40 % in 1985 to 97 % in 1988. Compared with canal irrigation, *spraying* could increase yield by 20-30 %, save water by 30-50 % and raise the utilization rate of land by 7-10 %. The area using *airplanes* to prevent plant disease and insect pest was maintained at about 400,000 mu (26,666.67 ha), accounting for 63.5 % of the wheat land. Plastic film, fertilizer in prescription, stoving of grain, returning of straws to land, bacteria to increase yield, fine seeds, etc. were also popularized by a big margin. (Liaison 1989: 36-37)

Promotion of non-grain agriculture and off-farm lines. Since the implementation of the Single Land System, of the total 223,000 laborers of the County, only 23,800 remained in grain production. 40,000 were released to non-staple foodstuffs, 10,000 to commerce and 150,000 to TVEs. In 1988, the output of egg, poultry, meat, and vegetables reached one quarter of the total output of Beijing. The total income of the rural firms increased from one billion yuan in 1986 to 2,2 billion yuan in 1988. (Liaison 1989: 38)

Major Problems

Regarding the technical aspect in promoting large-scale farming, the problems were mainly the insufficient services and technological progress. Therefore, they should be strengthened, especially in improving infrastructure and machinery. For example, in 1995, in one village of Wuxi County of the Sunan region, the large-scale farmers did not use machinery to harvest rice, because the fields were too wet for the domestically manufactured combines owned by the village, while the Japanese combines which would work were prohibitively expensive for the village even with the indirect subsidies on machinery purchases. They had to hire migrant workers to harvest the rice. (Prosterman; Hanstad & Li July 1996: 22). In 1995-96, in Yuzhuang Village and Xikong Village of Tengzhou City of Shandong Province, per mu yield of wheat had been raised to over 600 kg. But the existing combine harvesters of various trade marks could not work in the fields with per mu yield higher than 500 kg. (CCJ 1996)

V. Theoretical Discussion

Concerning the Elimination of Individual Bargains

Compared with in Japan, land consolidation and expansion to overcome the fragmented small farms as the last obstacle imposed by the monsoon in sustainable rural development of Asia were much smoother in China. The fundamental reason was the land tenure system. Under the village collective form of land ownership of China, the bargaining power of the part-time farmers and absentees who held contracted land for inefficient use and imposed negative pecuniary externalities on the full-time farmers and the society was much weaker. Thus, the village could function as a typical firm within which, as Coase supposes, the individual bargains between the various cooperating factors of production are eliminated and a market transaction is substituted by an administrative decision by an entrepreneur who directs resources with authority. Their inefficiently used land could be transferred to full-time and expert farmers for efficient use at much lower transaction costs - educating them on the importance of efficient use of land and large-scale farming; providing them with self-sufficiency land for establishing the Dual Land System, and selling them self-consumption grain at prices lower than market levels plus family plots for vegetables for setting up the Single Land System, which could render them a back-up basic social welfare and win the majority and even unanimous agreement of them; obliging those who still refused to give up land to participate in bidding together with expert farmers, thus either winning or losing the contract. Approach 1 of assigning property rights for eliminating negative externalities (permission for the relevant parties to exchange property rights through a political or legal process, followed by market exchange) and Approach 2 [implementation of social actions (law, tax, etc.) to oblige the externality-yielding party to exchange property rights, followed by market exchange] were applied, which were also applications of mixed economy: multiple structures of public and private ownership, and government intervention.

Collective land ownership has always been despised as anti-market economy by the main stream Western economists (represented by Hayek and Friedman). Since the end of the 1980s, decollectivization has been in fashion in

Eastern Europe and Russia. Interesting enough, under private land ownership in Japan, land could not be operated according to market principle of competition (recalling that "competitive" means that resources can move smoothly in response to prices, i.e., without being monopolistically or oligopolistically held with bargaining power, as reviewed in Chapter 3), thus indeed anti-market economy; but under collective land ownership in China, it could, hence pro-market economy. Therefore, collective land ownership not only does not exclude a market economy, it even strengthens it under a collective-individual mixed economy.

Government intervention has also been scorned and regarded as closely related with public ownership of the means of production by the main stream Western economists. Therefore, private land ownership should require less government intervention. Ironical enough, however, in order to promote land consolidation and expansion, the Japanese government made much more intervention, spent much more money, efforts and time than the Chinese government which mainly relied on, plus issuing guidance to, the initiatives of local officials and peasants and financial resources of villages and townships. The major problem with the Japanese government intervention was that it remained outside the land tenure system, regarding private land ownership as untouchable, which resulted in even more government intervention and still little progress. By contrast, to achieve the same aim, collective land ownership in a collective-individual mixed economy in China led to much less government intervention.

Therefore, the key question is not whether government should intervene or not, but with what and how it should intervene. A major reform of private land ownership and introduction of relevant public factors into it may result in much less government intervention.

Hence the possible value of my Proposal 1 to Japan as elaborated in Chapter 4 - collective-individual dual level operation of physically unwithdrawable private land shares under corporate ownership, which, by preserving private land ownership but adding public factors to it, would weaken the bargain power of the private land owners in land consolidation and expansion and overall rural development, thus introducing a competitive market economy into land use and reducing (although not abolishing) government intervention.

Regarding the Appropriateness of Large-Scale Farming

The large-scale farming and collective-individual mixed economy in China pursued *appropriate* large-scale farming, i.e., it expanded the farming scale from the Equal Land System first to the Dual Land System (self-sufficiency land to everybody; responsibility land to everybody, to every labor force, to every agricultural labor force, to expert farmers via bidding) then to the Single Land System (responsibility land to expert farmers; self-consumption grain at lower prices and family plot for vegetables to everyone else), according to the extent to which the development of non-grain agriculture and off-farm lines could absorb surplus peasants, rather than squeezing those peasants still relying on land. This was in accordance with the principle of variable mixed economies - varying relations between the public and private sectors, and their dynamic change over time in relation to changing needs in economy and society, and with the timing of changing existing property rights structures - following the development of production, technology and market, which induces new benefit-cost possibilities, that in turn shows gains of internalization (or efficient production) of negative externalities that exceed its costs, which subsequently raises the need for internalization (or efficient production) of negative externalities, that finally requires a change of the existing property rights structures and a new institutional and legal framework for enforcement.

Although the village could function as a typical firm with an entrepreneur directing resources with authority, the leaders (entrepreneur) could not do it arbitrarily. For carrying out the Dual Land System, majority agreement had to be achieved, and for the Single Land System, majority or even unanimous consent. There have been cases in which village officials, in order to charge more village-drawn fees for rural industrialization or probably also for their corrupt use, violated the appropriateness of large-scale farming and forced the mass peasants who could not yet find jobs in non-grain agriculture and off-farm lines to subsist on tiny self-sufficiency land or, in one extreme case, gave them no land. But such wrong doings would exert negative externalities on the mass of peasants and society as a whole, tending to be reported by peasants, exposed by the media and penalized by the government which attaches extreme importance to keeping rural stability and removing poverty.

Thus the large-scale farming and collective-individual mixed economy based on public land ownership in China, (1) could eliminate the negative externalities by the part-time farmers and absentees on the full-time farmers much more easily than in Japan; and (2) could control the speed of expansion of large-scale farming so as to prevent the negative externalities on the mass of peasants who still needed land, thereby also avoiding such a situation as in India (as reviewed in Chapter 4) from happening in China.

Considering the Functioning of Large-Scale Farming

Under the Chinese model of rural development, not only fragmented small farms could thrive at the low wage economy just as under the Japanese model, but also large-scale farmers could prosper at the high wage economy, which has been constrained under the Japanese model.

Various organizations of large-scale farmers (individual household farms, joint-households farms, collective farms 1, 2 and 3, urban-rural joint enterprises, external and foreign ventures) could work well within a framework of public land ownership, which gives supportive evidence for Nuti's model of market socialism as a third way between the centrally planned economy and free market system, in which incentives for large-scale farming and Pareto efficiency could be achieved.

Again, of the many variables for rural development, the institutional changes are the keystone. It is the institutional component that is most important in the interaction of institutions and technologies as the underlying long-term ultimate causes that sustain economic growth of developing countries. But once production has reached the frontier permitted by the established institutions, even though the increase of production is technologically possible, it would be hampered by the vested interests - the part-time farmers and absentees who held land for inefficient use in both Japan and China. At this stage, variable mixed economies were also needed for reaching dynamic or long-term Pareto efficiency, and another round of institutional changes required to allow sustainable rural development. It did not take place in Japan, hence feature 9 of the Japanese model (persistence of the fragmented small farms). But it did take place in China, thus feature 9 of the Chinese model (large-scale farming and collective-individual

mixed economy), which made its feature 10 (agricultural mechanization with large machinery) possible, and facilitated its features 11 (promotion of development in poorer areas) and 12 (urban-rural joint enterprises and external and foreign ventures in agriculture). Hence the superiority of the Chinese model over the Japanese.

After agricultural mechanization with large machinery was made possible, there existed the problems that ordinary individual farming households might not afford to buy machines and, even if they could, might not use them in economies of scale. Thus, economies of scale in holding large machinery were also applied and promoted: machinery services to large-scale farms were given by specialized individual households, or joint households, or collective service stations.

The optimal size of large-scale farming reflected technological Pareto efficiency by which there is no way to produce more output with the same inputs or to produce the same output with less inputs. But the optimal size varies across time and place and changes as the economic structures change, hence also dynamic efficiency.

The three stages in providing direct and indirect subsidies from industrial profits to large-scale farmers give evidence for the thesis that market forces should be fostered. As reviewed in Chapter 2, there are some who are impatient with the inefficiencies of government and want to shift to the market, which they consider the most efficient allocator of resources. But the market is only as efficient as the forces making up the market. It took some time for the West to evolve and nurture these forces. It is well known that the (former) socialist countries are encountering difficulties in shifting from a planned to a market economy. It will take some time before market forces are developed, especially the ability of entrepreneurs to finance and market their production. Indeed, an important historical function of government in the process of development is to mold these forces so that the market becomes an efficient resource allocator. Therefore, the large-scale farmers initially required both direct and indirect subsidies by villages and local governments. As they became stronger, they could relinquish the direct subsidies first, and even indirect subsidies in the future.

The evolution from the small-scale to the large-scale farming collective-individual mixed economy followed the two general methods of changing existing property rights structures: the first is to make *gradual* changes in social mores and

common law precedents, and the second to make a *conscious* collective endeavor, such as a major reform or revolution at a certain stage of the gradual changes in the first general method.

Chapter 5, together with Chapter 4, has provided evidence for my hypothesis that the fragmented small farms as the last obstacle imposed by the monsoon against sustainable rural development in Asia may be overcome by variable mixed economies, increasingly along three main phases. *Phase 1*: sub-village individual-collective mixed economy (sub-village-wide cooperative/enterprise collective use of physically withdrawable private land shares, exercising collective-individual dual level operation of large land units, with the basic operation level at one household or at a farming unit including a number of households). *Phase 2*: village-wide individual-collective mixed economy. *Phase 3*: either large-scale farming public-individual mixed economy or corporate-individual mixed economy (collective use of either public land, or physically unwithdrawable private land shares under corporate ownership, exercising village-individual dual level operation of large land units, with the basic operation level at one household or at cooperative/enterprise including a number of households, as a third way between the centrally planned economy and free market system).

VI. Other Rice-Based Economies under Public Land Ownership

Agricultural land has been under public ownership in Cambodia, Laos, Myanmar, North Korea and Vietnam. They have all adopted market-oriented rural development measures, although to distinctly different degrees. In the sense that they still keep public land ownership, they could be regarded as within the Chinese model. According to the criteria that China has achieved the fastest economic development with average annual growth rate of gross domestic product of 12.1 % during 1992-96 (Jiang, Ze-Min 1997), avoided new landlessness in the low wage economy and controlled inefficient land-holding in the high wage economy, China might be considered as at *level 1*. Myanmar, whose average annual growth rate of GDP reached 8.1 % during 1992-96 (Vokes 1997: 644), and whose land tenure system has avoided new landlessness in the low wage economy

and could also control inefficient land-holding in the high wage economy, may be regarded as at *level 2*. The average annual growth rate of GDP was 6.35 % during 1994-95 in Cambodia (Summers 1997: 188), 6.5 % during 1990-95 in Laos (Gainsborough 1997: 539), and 8.2 % during 1991-95 in Vietnam (Demaine 1997: 1063). But following the establishment of a nominal state - but *de facto* private - land ownership, both new landlessness and inefficient land-holding have immediately appeared. Therefore they are rated as at *level 3*. North Korea in principle still keeps the centrally planned economy, and its annual growth rate of gross national product was -3.9 % (note *negative*) during 1990-95. Hence it is put at *level 4*. Due to the length limit, the following review is concentrated on their land tenure reforms.

Level 2: Myanmar

The Constitution of Sep. 24, 1947 of *Myanmar* which gained independence on Jan. 4, 1948 established a state land ownership with the right of tilling land given to the actual tillers. They include mainly private individuals, but also state economic enterprises, cooperatives, domestic-foreign joint ventures and other organizations. Upon application by peasant households, village people's councils allocated parcels of land to farmers with a maximum duration of 30 years, but renewable for lifetime, and decided who should till the land after their death. Thus small land-holders have been dominant. (Steinberg 1981: 125. Silverstein 1997: 634-635. Steinberg 1987: 273. Kyi Win 1997)

During 1962-86, there was a compulsory state rice procurement quota system. In principle, the state had a *monopoly* of all major commercial sales of rice, inter-township paddy shipment, and exports. Quotas were set for procurement from individual farms. The farms could retain fixed amounts for home consumption plus a small amount for seeds and ceremonial activities, were required to sell most of the surplus up to the quotas to the state agency, and could then sell the residual to any individual consumer within the township (in specified rice surplus townships, also beyond the township) (like Bao *Gan* Dao Hu, the major form of the Household Contract System in China). The state procurement prices, although raised several times, were generally lower than the market prices, hence a Two Track Price System for rice (analogous to but implemented before

the Chinese practice). *During 1987-88*, the state liberalized the marketing of rice, first by allowing cooperatives to operate alongside the state agency, and then, in September 1987, by opening trade to private agents. Their introduction, however, coincided with a decline in paddy production and a period of rapidly rising rice prices which contributed to growing unrest in urban areas in 1988. Thus, *since 1989*, the compulsory state rice procurement quota system has been reintroduced. In 1990-91, the state purchased about 15 % of total paddy output, cooperatives bought around 7 %, and the rest was open to private agents (similar to China too). Although the quota prices were lower than the market prices, the state provided fertilizer and credit at subsidized prices to farmers. (Steinberg 1981: 133. Steinberg 1987: 274. Vokes 1997: 646)

Rice still dominates the economy, and is the main source of employment and principal export earner. Production is dependent on the weather. As a result, Myanmar remains one of the poorer countries in Asia. (Vokes 1997: 645-646). Its land tenure system, which is quite similar to feature 1 of the Chinese model, functions well as it has avoided new landlessness in the low wage economy, could control inefficient land-holding in the high wage economy, and has guaranteed a basic food security via the state compulsory procurement quota system. But it also is currently under revision in order to realize a more market-oriented rural development (Kyi Win 1997).

Level 3: Cambodia, Laos and Vietnam

In contrast to China and Myanmar, Cambodia (1981), Laos (1988) and Vietnam (1993) have founded a nominal state - but *de facto* private - land ownership.

In *Cambodia*, agricultural cooperatives under the rigid centrally planned economy were replaced in 1979 by *krom samaki* (solidarity groups), each composed of 10-15 households, with three different classes. In class 1, production was fully collectivized. Whether they were shirking or working hard, members could gain the produce according to the man-days they worked (like that in the Chinese communes). In class 2, major means of production were collectively owned, but only limited work was conducted collectively. Land was divided into parcels allocated on a family basis corresponding to the number of family

members, and managed by families. In class 3, land officially belonged to the state but all the other means of production were privately owned, and families were engaged wholly in individual production. While in 1981, 20 % of the *krom samaki* were in class 1, and 60 % in class 2, in 1989, almost 90 % were in class 3. In the same year, it also was decided to abandon the *krom samaki*. Rural residential land was turned to private ownership and could be sold and bought; farmland belonged to the state but possession was given to peasant households with tax to be paid for using it; if a farmland was not used for one year, the authorities could take it away; the possession of farmland was also salable and farmland could be converted into residential land, both subject to the approval of government offices. (Summers 1997: 187. Kusakabe; Wang & Kelkar 1995: 87-90)

Laos halted the new establishment of agricultural cooperatives in 1979, and abandoned them in 1986. In 1988, long-term usufructuary rights to land were granted to peasant households, inheritable and salable to natural and legal persons. This was confirmed in the 1991 new constitution which also made clear that all land belongs to the state. (Gainsborough 1997: 538-539. Kirk 1996: 108). Any land left idle could in theory be recovered by the village chief and reallocated, on a temporary basis, to another family. Since 1993, the state has required that villages pay land tax in cash, refusing the traditional payments in paddy. (Groppo; Mekouar; Damais & Phouangphet 1996: 14-15)

In *Vietnam*, before 1979, a workpoints system was carried out in agricultural cooperatives (as in the Chinese communes) which resulted in equalitarianism rather than incentives. In that year, it was supplanted by a system of contracting output quotas to households and linking the fulfillment with workpoints which were then linked to remuneration (like Bao *Chan* Dao Hu, the minor form of the Household Contract System in China). To achieve equality in land quality, quantity and distance, land given to households was fragmented (which was not necessarily consolidated in the later reforms). The tenure length was three to 15 years. By 1988, it was further replaced by a system of contracting output quotas to households, leaving the total residuals to them without the involvement of workpoints (like Bao *Gan* Dao Hu, the major form of the Household Contract System in China). In 1988-89, the compulsory procurement quotas were displaced by a land tax of 10 % of normal output (as average in the

past)[25] and land use rights were given for 15 years to households which agreed their own contracts for sale for whatever crops they chose to cultivate. (Demaine 1997: 1057. Hayami 1994: 1, 9-10, 13, 19). The 1993 Land Law declared that all land was formally owned by the state but households were given land use rights which were further exchangeable, transferable (salable), leasable (maximum three years normally), inheritable, and mortgageable for loans. The local administrations (such as the people's committee of communes and districts) were supposed to judge the need for land sellers or lessors to reduce their land holdings and also to assess the capacity of buyers or lessees to use the increased holdings efficiently. The limit of agricultural land for annual crops of each household was 3 ha. The use period was 20 years for planting annual crops and aquaculture, 50 for perennial crops, and renewable if lawfully used. If the land was not used for one year, it could be withdrawn by the state. If the state needed to recover land for the public interests, compensation would be given to the households affected. (LLV 1993: 40, 43, 45, 49, 56). In order to record and protect private land use rights, the government has been conducting a nationwide cadastral survey and land registration and begun to issue Land Use Right Certificates (LURC). But this would need 15 years to complete and is extremely costly. (Hayami 1994: 9, 12)

Because in these three countries, since the new land tenure reforms, the state-owned farmland could be used just as private land, there is no state compulsory procurement quota, the possession of land could be sold and bought like private property, and in Cambodia residential land became privately owned and salable, such land use rights have "*become little different from private land property rights* in modern market economies in their effects on resource allocations, even though 'state ownership of land' is maintained" (Hayami 1994: 9).

Level 4: North Korea

In North Korea, agricultural land is either collectively owned (more than

[25] But Haque and Montesi report that the land-use tax rate is fixed at 7 % of the average value of output achieved during the previous three years. The tax rates vary from 50 kg per ha to 550 kg per ha for various categories of annual cropland, and up to 650 kg per ha for perennial cropland. Once defined, the land categories remain unchanged for 10 years. (Haque & Montesi 1997 Part One: 9)

90 %) or state-owned. A centrally planned economy is still in place. In 1995-96, a new stress was made on transformation of collective farms to state ownership. Since 1991, output has declined and serious food shortages occurred, especially since 1993 due to flood damage (FEA 1995: 466. FEA 1997: 488). Rice was an important export commodity until the mid-1980s, but has to be imported, together with wheat, in the 1990s. Although the labor force in agriculture was reduced to 32.6 % of the total labor force in 1991 (FAO-YP 1993: 29), this did not mean that it had completed the first transition, but reflected relative labor scarcity in an economy disproportionately engaged in heavy industry and with a large military. In fact, the armed forces had to be deployed in agriculture in 1996. (Chung 1997: 481-483)

A few signs of economic reform have, however, also appeared. Industrial joint-ventures with foreign - including capitalist - countries, following the Chinese-style special economic zones, started in 1984, although with limited success. In 1994-96, emphasis was switched from heavy industry to agriculture, light industry and foreign trade. (Chung 1997: 481-483). More significantly, in 1996, the state allowed 30 pyong (0.0099 ha; 1 pyong equals 3.3 square meters) of backyard cultivation for each civilian household and 100 pyong (0.033 ha) for a soldier's family (Shim Jae Hoon 1996: 30), which were similar to the family plots of China, and it was reported in 1997 that massive collective farms have been reduced in size (similar to feature 1 of the Chinese model: institutional changes for a small-scale farming and collective-individual mixed economy). It also was reported that some farmers have been permitted to plant crops twice a year (double-cropping) which had long been forbidden (both feature 4: multiple cropping of grains and feature 5: diversified cropping). Peasants in the hard-hit northern provinces have been told to fend for themselves, allowing them to trade privately with China (feature 2: market-oriented government policies). With help from the UN Development Program, there have been a few scattered experiments, providing credit to individual households to buy chickens or goats and allowing them to sell eggs or milk on the open market (feature 5: non-crop agriculture). (Richburg 1997: 4). North Korea is thus at the bottom of the Chinese model of rural development.

An Analysis of the Nominal State - But De Facto Private - Land Ownership

The designers and advocates of the nominal state - but *de facto* private - land ownership (including Hayami whose advice for setting up such a land tenure system was adopted and honored in Vietnam) either did not expect or excluded the ensuing problems, especially the following two.

(1) New landlessness in the low wage economy.

As indicated in Chapter 2, in monsoon Asia, when yields of rice and other grains are low, and rural infrastructure, diversified cropping, non-crop agriculture, and off-farm employment not yet developed, peasants can find few employment opportunities in non-grain production. Thus their income is very low. In such a low wage economy, their ability to cope with problems in production and living is also very weak. In both the Chinese and Japanese models, however, new landlessness after the land tenure reforms has been avoided mainly by feature 1 (institutional changes for an individual-cooperative or collective-individual mixed economy), showing *two major differences* in comparison with Cambodia, Laos and Vietnam.

The First is prohibition or strongly restricted private land ownership. In *China*, private ownership of either residential or any other land is not allowed. Everybody is guaranteed some land under the Equal Land System and self-sufficiency land under the Dual Land System. The possession of responsibility land is not equal to private property because there are state compulsory procurement quotas. The possession of any land cannot be sold and bought, although the contracted land can be transferred and the transferor can charge remuneration for the improvement he made. Under the Single Land System, those who have left farmland to earn an income higher than that from small-scale farming are sold self-consumption grain at lower prices and given family plots for vegetables. In *Japan*, after the land reform for an individual ownership, until the 1960s, land sale and lease, although allowed, were seriously restricted by a 3 ha ceiling on land holding, protection of tenants from eviction, and control of land rent at a very low level.

The Second is collective support to individual farms. In *China*, land is under village-household dual level operation. The households are the basic level,

but the village has the duty to provide services and support to them, and reduce or waive their state procurement quotas in case of natural disasters. In *Japan*, during the 1950s, when peasants were still poor and weak, the national rural cooperatives network provided extensive collective services and support to individual households. Therefore, poverty due to weak single household operation of land and emergence of new landlessness have been avoided in both China and Japan.

By contrast, in Cambodia, Laos and Vietnam, the permission of selling state-owned but individually possessed land gave the *possibility* for peasants to be forced to sell land for dealing with natural disasters, diseases, debts (including gambling losses) and other difficulties, or be induced to sell land to industrial and urban developers/dwellers for earning easy and high short-term profits, thus becoming newly landless. The abolition of the agricultural cooperatives together with their services and support to individual households resulted in single individual household operation which is weak when peasants are still poor. The difficulties they met strengthened the *necessity* for them to sell land and become newly landless.

Most rural areas of Cambodia, Laos and Vietnam are still in the low wage economy. For example, in *Cambodia*, agriculture remains the mainstay of the economy. Employment opportunities outside agriculture are extremely limited. Agriculture itself is dominated by rice subsistence farming. Production is vulnerable in adverse weather conditions. Irrigation systems remain largely inoperable. 38 % of households were below the poverty line in 1996. Cambodia is one of the poorest countries in Asia and the world. (FAO/WFP 1996: 2)

When *krom samaki* were abolished, land was distributed to member households according to their family size at that time and was to be registered at the district land office. Under the new system, privately owned residential land could be sold and bought with the permission of the district land office. State-owned but privately possessed farmland could also be sold and bought, and converted into residential land, with the permission of the provincial land office. But the management of land by the authorities was not serious. Some people tried to record more land than they had and when the officers came to check, they borrowed others' land temporarily. Many peasants got farmland without registering it with the district land office at all so as not to pay the registration

fee. Even so, they could still sell their possessed land with the signatures of the local authority. In one case, a poor woman's farmland was partially occupied by her neighbors, but she could not win justice from the village committee because she could not afford to invite the officers for meals and drinks. Hence the superficial and arguably chaotic land management in the young Cambodian market economy after the abolition of the cooperatives. (Kusakabe; Wang & Kelkar 1995: 88-91)

Abolished with the *krom samaki* was also their support to individual households. Owing to the loss of men in the wars, women make up 54 % of the adult population over 15, head 20 % of rural households and hold possession title to substantial paddy land. Peasants in general do not want to sell land, as a group of women cried: "If I sell land, where shall I live?" (Summers 1997: 189. Kusakabe; Wang & Kelkar 1995: 89-91)

But due to difficulties from weak individual land operation, poverty, illness, and even gambling losses, quite a few peasant families, especially those headed by widows, had to sell their possession of farmland. A widow sold land because her family could not afford to keep the land after three years' bad rice yield and their income from fishing was not sufficient. Although sale of land formally requires all the relevant people's signatures, this regulation seemed unimportant in practice. Owing to gambling losses, a man sold the possession of his family's farmland even without informing his wife, although it had been registered under both of their names. There were also women who, due to marriage, separated from their parents but found that the latter refused to give them farmland owing to family unhappiness, so that they had to work as wage laborers in other farms. They all became newly poor landless. (Kusakabe; Wang & Kelkar 1995: 89-91)

On the other hand, there were people who sold residential land and possession of farmland along the roads at high prices to earn more money, and thus also joined the newly landless. They could not easily survive if they have spent the easy money while still having not found secure jobs in non-agricultural production which as yet is underdeveloped in the poor rural areas. A widow sold land and bought weaving machines to weave silk skirts to be sent to Phnom Penh for sale. But it was unclear how she and her family could live if market demand fell. (Kusakabe; Wang & Kelkar 1995: 89-91)

In *Laos*, the agricultural sector is continuously vulnerable to adverse weather and pests. The country is land-locked, with a poorly developed infrastructure and a serious shortage of skilled labor. Economic disparities between the more developed areas, especially the Vientiane Plain and the southern Mekong towns on one hand, and the rest of the country on the other, have increased since the reform of the late 1980s. Laos is also one of the poorest countries in Asia and the world. (Gainsborough 1997: 539)

Cultivable land is scarce, while population pressure is increasing. The early settlers and their heirs have occupied more land, leaving less or no land for the villages to distribute to the new families. Inheritance also made land more fragmented. (Groppo; Mekouar; Damais & Phouangphet 1996: 11, 17, 31). Because salability of land requires the individually possessed public land to be fixed to the possessors, officials have no means to take a part of land from those households possessing more public land and allocate it to those households holding less or no land below the subsistence level, or to consolidate fragmented parcels.

With the salability of the state-owned but individually possessed land, from 1993-94 on, property transactions near Vientiane mainly involved the sale of agricultural land, mostly along or near roads, to urban dwellers. Peasants with a large land area (5 to 10 ha) have been able to sell at high prices, thus rapidly increasing their capital investment potential while still retaining sufficient agricultural land. In contrast, families with little land (1 to 2 ha) have been unable to sell any land and were having problems meeting their basic requirements on the farm as they were below the sustainability threshold. The social gap has been widening. In the present context of greater market integration and gradual economic opening up, they will probably find it difficult to avoid proletarianization or poverty. (Groppo; Mekouar; Damais & Phouangphet 1996: 16-18)

Land sale to urban dwellers was for high prices reflecting future industrial profits rather than agricultural earnings, thus those farmers who really needed land for survival could not afford to buy it at all. While few villages still have land to allocate to new population, the property market has absorbed a large land area. For example, in one village with 15 landless families and no land to allocate because there was none left, no less than 75 ha have been sold in barely two years. (Groppo; Mekouar; Damais & Phouangphet 1996: 17). Meanwhile, the

obligation to sell land due to difficulties in the weak single household operation, natural disasters, diseases, debts, gambling losses, etc. has occurred.

As a result, landless families as a *new* category of inhabitants - agricultural proletariat - began to emerge in many villages. Around Vientiane, it accounted for about 10 % - 15 % of the total rural families. In one village, 71.6 % of the households were landless. In another village, five families held no land but lived with their parents-in-law, who possessed a fair amount of land. The possibilities for these families to possess land are virtually nil. There is insufficient agricultural land for rent to alleviate the lack of appropriate land. Those who could not rent land had to rely exclusively on wage labor in the village or in Vientiane. (Groppo; Mekouar; Damais & Phouangphet 1996: 11, 23, 42)

In *Vietnam*, in 1994, 6.8 million or 17 % of labor force were either unemployed or underemployed. There are sharp contrasts in development between different regions, especially lowlands and uplands. Infrastructure is still backward. (Demaine 1997: 1056-1057, 1063). More than half the 75 million people still living under the poverty line, although major cities have become much richer (Economist 1997: 66).

However, during 1988-94, over 2,950 agricultural cooperatives (17.4 % of the total) had been dissolved. By the end of 1994, a total of 16,243 agricultural cooperatives still existed, covering about 64 % of all farm households. But there were great differences in their operational performance. An estimated 15.5 % of them that had recorded good performance in the past ("*good*" cooperatives) were still able to provide necessary services to member households. "*Middle*" performing cooperatives accounted for 40.4 % of them and were mainly engaged in providing irrigation facilities and services. They did not have sufficient capital and funds to cover increased expenses, and many members have quit. Thus lots of them have become dormant and nominal. Non-operational ("*bad*") cooperatives accounted for 43.3 % of the total. Although the leadership of these cooperatives remained in place, they neither carried out economic activities nor provided any services to members. The management costs were mainly paid out of debt recovered from the members. In many regions, however, members refused to provide any additional funds. As a result, the number of "*bad*" cooperatives has been increasing. In the South, cooperatives have largely disappeared. The farm tasks that require group actions, such as irrigation management, have had to rely

on voluntarily formed production teams, which appeared in both the North and South. (Harms 1996: 1-3. Hayami 1994: 11). Therefore, the majority of farm households are carrying out single household operation of land which is weak.

Under such circumstances, following the permission to sell the individually possessed state-owned land in 1993, newly landless has appeared. In early 1997, the government raised its concern about this issue during a meeting of provincial leaders in the Mekong Delta. No official data relating to this situation is yet available, but a survey on the new landlessness in the Mekong Delta is being carried out. (Messier 1997)

Hayami, however, has excluded the possibility of new landlessness and the related trend of polarization, claiming: "The highly polarized agrarian structure and oppressive landlordism observed in some developing countries have emerged mainly as the result of colonial exploitation policies, including exclusive land allocations to colonial elites. This situation is diametrically different from that of Vietnam today. Therefore, it is not necessary to be overly concerned about such an inequitable agrarian structure emerging in this country". (Hayami 1994:15). The immediate appearance of the new landlessness has shown that such an assertion was arbitrary.

(2) Inefficient land-holding in the high wage economy.

As analyzed in Chapter 4 and this chapter, in monsoon Asia, once yields of rice and other grains are raised, and rural infrastructure, diversified cropping, non-crop agriculture, and off-farm employment developed, peasants can find sufficient employment in non-grain agriculture and off-farm lines. Their income is greatly increased and there is no need for them to rely on rice production. If land were fixed to the possessors, then, in such a high wage economy, there would be a tendency for the possessors to become *part-time farmers* and *absentees* and keep the land just as an asset without tilling it efficiently, nor selling and leasing it to the full-time farmers who wish to concentrate on rice production. Even in those rural areas which still remain in the low wage economy, many peasants may go to cities or other rural areas which have entered the high wage economy to earn more income, while still holding their land without efficient use and even leaving the land desolated. The newly rich peasants may change farmland into residential land for more housing. *Moreover*, urban developers, who have bought agricultural land when its prices were relatively low

in comparison with its future prices, may leave the land idle for years before making construction, or repeatedly sell the land between speculators in expectation of continually higher prices.

While the Japanese model, due largely to relying on free market forces, has not been able to overcome this last obstacle, the Chinese one has, by implementing variable mixed economies. Besides controlling inefficiently used land in agriculture, China has also curbed idle farmland transferred for urban development. If the contracted investment did not come within a reasonable period (e.g., one year), the contract would be stopped and the land would be either transferred to another developer or turned back to farmland.

Unexceptionally, the inefficient land-holding has occurred immediately after the setting up of the nominal state - but *de facto* private - land ownership, at least in *Laos* near cities where wages are much higher. It has been mentioned in the above that around Vientiane from 1993-94 on, following the salability of the state-owned but individually possessed land, much agricultural land, mostly along or near roads, was sold mainly to the rich urban dwellers. But much purchased land was just left idle. Although in theory unused land is to be withdrawn by the village, the mechanism to prevent inefficient land-holding and land desolation is neither sufficient, nor effective. (Groppo; Mekouar; Damais & Phouangphet 1996: 17, 44)

Disregarding the above two major problems, however, Hayami argues that free market forces should be allowed to play a much greater, even full, role. He criticizes the 1993 Land Law of Vietnam for putting private land transactions under several regulations (such as the maximum ceiling on land holding, justification by local officials of the need for land sellers or lessors to reduce their land holdings and the capacity of buyers or lessees to use the increased holdings efficiently), on the grounds that in his judgement of the experiences of other countries, such regulations, once strongly enforced, became a source of extremely large inefficiency (e.g., in Japan) (Hayami 1994: 14-15).

Hayami's prescription is that "The proper policy design should limit application of the regulations on land market to the cases in which significant externalities or social costs, such as water pollution, are involved. Land transactions involving no such costs to society should be approved *automatically*." (Hayami 1994: 2). In short, public land should first be fixed to individuals, and

then private land transactions should not be restricted.

However, Hayami does not note a dilemma in his free market recipe, i.e., certain strongly enforced regulations in the land transaction market in the low wage economy may become a source of inefficient land-holding in the high wage economy; but without them, newly landless would appear in the low wage economy. Hayami is unlikely to find any solution to this dilemma within free market system. Evidence for its solution is found only in variable mixed economies.

Therefore, it was correct for Cambodia, Laos and Vietnam to abandon the centrally planned economy, but *incorrect* to turn to the opposite extreme - largely relying on free market forces and paying little (at least insufficient) attention to the intervention by governments, and management and support by villages and cooperatives.

Hayami acclaims the nominal state - but *de facto* private - land ownership (in Vietnam) as "*beyond* China's reform in assigning and protecting of private land rights" (Hayami 1994: 4). But the fact that new landlessness has appeared immediately after the land tenure reforms in the low wage economy in Cambodia, Laos and Vietnam already shows that this model is inferior to the Chinese. In the high wage economy, if the state failed to oblige the part-time farmers and absentees to transfer their land to full-time and expert farmers due to the high transaction costs in dealing with the peasants who hold strong bargaining power by possessing LURC (Land Use Right Certificates), then it would fall into feature 9 of the Japanese model in front of the last obstacle, and thus also be worse than the Chinese model. If the state, to the contrary, by its ownership right, succeeded in effecting such a transfer, this still would not be beyond the Chinese model (albeit specific methods could be different).

Although Hayami claims that his favorite nominal state - but *de facto* private - land ownership (in Vietnam) "may serve as a model, which many other countries in transition to market-oriented economies may well be advised to follow" (Hayami 1994: 9), Diouf, Director-General of FAO, comments just to the opposite: "The tremendous achievements of China in realizing food security have attracted worldwide attention. The Chinese experience should be taken into account by other developing countries." (Diouf 1997). Therefore, Hayami himself, and countries like Cambodia, Laos, Vietnam, may well be advised to study the

Chinese model, especially its features 1 and 9, as a means for overcoming not only poverty, but also "the last obstacle".

Conjectural Proposals 5-7

Proposal 5. For carrying out market-oriented rural development in Cambodia, Laos and Vietnam, it was justifiable to keep the state ownership of land, rather than privatizing it. But it should be noted that a nominal state but *de facto* private land ownership may still lead a part of the peasantry into landlessness in the low wage economy, and part-time farmers and absentees to hold land for inefficient use in the high wage economy.

In particular, both the Chinese experiences and those of these countries have shown that for a market-oriented rural development under public land ownership, (1) private land sale and mortgage are not only unnecessary, but also harmful, as they make new landlessness possible; (2) strongly enforced conditions for land-holding are necessary for the efficient use; (3) cadastral certification for a *de facto* private land ownership are unnecessary and detrimental, as it not only incurs high costs (in money, time, human resources, etc.) and disputes (Gordillo de Anda 1997: 3), but also tends to fix the land to the possessors and hinders land transfer from inefficient holders to full-time farmers in the high wage economy; (4) state compulsory procurement of quotas of grain is beneficial and may even be a necessary condition of guaranteeing a minimum grain security for the whole country.

It therefore is recommended that Cambodia, Laos and Vietnam should draw these lessons, abolish the nominal state - but *de facto* private - land ownership and pursue the Chinese model.

Proposal 6. In the revision of the present land tenure system for a more market-oriented rural development, Myanmar should not establish a nominal state - but *de facto* private - land ownership. Rather, it would be beneficial for it to go alongside features 2-12 of the Chinese model.

Proposal 7. North Korea is the only rice-based economy in monsoon Asia - and the last country in the world - still sticking to the centrally planned economy. It is advised to begin agrarian reform and rural development with feature 1, and then proceed with other features, of the Chinese model. Neither

privatization of land ownership, nor establishment of a nominal public - but *de facto* private - land ownership would be suitable, as shown by the Japanese model and the experiences of Cambodia, Laos and Vietnam respectively.

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